













# TECHNOLOGY OF CELLULOSE ESTERS

A THEORETICAL AND PRACTICAL TREATISE ON THE ORIGIN, HISTORY, CHEMISTRY, MANUFACTURE, TECHNICAL APPLICATION AND ANALYSIS OF THE PRODUCTS OF ACYLATION AND ALKYLATION OF NORMAL AND MODIFIED CELLULOSE, INCLUDING NITROCELLULOSE, CELLULOID, PYRXYL, COLLODION, GELLOIDIN, GUNCOTTON, ACETYLCELLULOSE AND VISCOSE, AS APPLIED TO TECHNOLOGY, PHARMACY, MICROSCOPY, MEDICINE, PHOTOGRAPHY, AND THE WARLIKE AND PEACEFUL ARTS

IN TEN VOLUMES

BY

EDWARD CHAUNCEY WORDEN, Ph.C., B.S., M.A., F.C.S.

AUTHOR "NITROCELLULOSE INDUSTRY"

VOLUME ONE PART FIVE

Index

LONDON

E. & F. N. SPON, LTD., 57 HAYMARKET,

NEW YORK

SPON & CHAMBERLAIN, 120 LIBERTY STREET

1923



## INDEX OF PATENTS

NOTE.—The patents are placed numerically under the respective countries arranged alphabetically, the Applications for patents in each country preceding an enumeration of the granted patents. Due to a vacillating policy of recording Austrian patents, it has, in some instances, been impossible to differentiate between the patents and patent applications. Therefore, the first section records the Applications, while the second section enumerates the (supposedly) patents, in which may be included Applications and Privileges. The English Patents follow the Applications, but up to 1854 in Great Britain, one system had a continuous numbering of patents, whereas another began with number one on Jan. 1 of each year. From 1855-1915, inclusive, patents began with number 1 on Jan. first of each year, while beginning with Jan. 1, 1916 to date, the patent numbers are consecutive, commencing with 100001. With French patents, the Additions succeed the original patent number instead of being recorded together under a separate heading, thereby permitting improvements on the original patents to be observed without additional search. The German Applications are first recorded alphabetically according to the first letter of the patentee's name, followed by the Patents granted.

The following summary indicates the disposition by countries of the 39,468 citations of 27,372 separate patents contained in this volume

COUNTRY	NO. PATENTS	CITATIONS
Australia	52	52
Austria	958	1204
Austro-Hungary	8	10
Belgian	1246	1526
Canadian	702	837
Cape Colony	3	3
Danish	31	34
English	8675	13806
French	3405	5117
German	4524	6395
Holland	17	48
Hungarian	141	155
Indian	53	55
Italian	213	243
Japanese	39	42
New Zealand	18	20
Norwegian	231	247
Portuguese	22	26
Russian	51	56
Spanish	51	55
Swedish	103	122
Swiss	537	688
United States	6234	8909

ape Good Hope, Ceylon, Hong Kong, Mexican, New South Wales, Queen's Land, S. African Republic, Straits Settlements, Tasmanian, Turkish and Victoria, one each. Brazilian, Roumania and S. Australia, two each, Natal, four, Luxemburg, seven.

## AUSTRALIAN

## Applications

1844, 1063  
2331, 922  
2704, 2592  
2841, 1784  
4216, 2691

## Patents

46, 3047  
2146, 709  
2147, 709  
5105, 930  
3480, 922  
4223, 1388  
5566, 2017  
5593, 484  
5652, 2650  
5661, 2555  
6032, 933  
9238, 2546  
9239, 2546  
9240, 2546  
9241, 2546  
9316, 709  
9731, 1396  
10222, 709  
10274, 2397  
10462, 934  
11146, 932  
11238, 922  
11440, 2803  
12106, 10064  
12171, 1062  
12539, 920  
12559, 920  
12637, 1086  
12783, 921  
12784, 921  
12840, 709  
12891, 2421  
13148, 1290  
13600, 922  
14805, 922  
15405, 709  
15665, 922  
17262, 2703  
17451, 1070  
17684, 920  
17739, 1244  
18489, 920  
18490, 920  
18750, 920  
19008, 922  
19327, 857  
19452, 2024

## RUSSIAN

## Applications

237, 3010  
244, 3071  
303, 946  
304, 946  
348, 853  
355, 3064  
406, 3080  
508, 1006

541, 2560  
590, 3064  
638, 311  
819, 1402  
830, 2468  
839, 3024  
910, 304  
1263, 2602  
1297, 3045  
1305, 2775  
1311, 1005  
1339, 2653  
1447, 2579  
1564, 1006  
1713, 1785  
1755, 1885, 2247, 2672  
1793, 3042  
1821, 312  
1905, 3059  
2039, 3002  
2186, 446  
2250, 10061  
2269, 10061  
2275, 3018  
2344, 3081  
2361, 2777  
2427, 717  
2461, 3005  
2496, 1073  
2572, 1400  
2834, 2653  
2900, 3074  
2988, 2608  
2994, 3017, 3031  
3000, 664  
3025, 1005  
3050, 1005  
3060, 3042  
3325, 308  
3481, 2645  
3505, 709  
3610, 1401  
3615, 1006B  
3960, 1006B  
4005, 2652  
4048, 2643  
4114, 1005

4169, 3064  
4225, 1006  
4345, 1362  
4369, 92  
4399, 2762  
4492, 1005  
4568, 1006  
4624, 3032  
4757, 2893  
4851, 2634  
4912, 1401  
5012, 3010  
5091, 2647  
5142, 2632  
5340, 2893  
5578, 1004  
5603, 2602  
5616, 1356, 14  
5655, 3042  
5706, 2653  
5896, 3010  
5915, 72  
6056, 1006  
6211, 2898  
6296, 2645  
6391, 2515  
6455, 664  
6456, 664  
6788, 1381  
6790, 1402  
6823, 1005  
6861, 5  
7083, 995  
7083, 1004  
7084, 1004  
7140, 2775  
7150, 2762  
7449, 664  
7723, 3064  
7809, 1006B  
7840, 3077  
7844, 1006  
8008, 3064  
8062, 3013  
8096, 2775  
8304, 1006  
8584, 3005  
8685, 2762  
8776, 3060  
9226, 1073  
9230, 2655  
9415, 1006B  
9730, 2655  
9782, 3018  
9991, 2634  
9908, 3068  
10273, 2468  
10421, 1400  
10792, 657

10798, 2653  
 27258, 3010  
 A 23, 3073  
 A 115, 91  
 A 133, 995  
 A 327, 2999, 3018, 3054  
 A 403, 3032, 3035  
 A 406, 3009  
 A 535, 2687  
 A 541, 3013  
 A 658, 2724  
 A 756, 91  
 A 781, 74  
 A 823, 1223  
 A 1216, 2689  
 A 1511, 308  
 A 1677, 91  
 A 1787, 2399, 3009, 3029  
 A 2376, 3016, 3017, 3056  
 A 2756, 2682  
 A 2889, 2760  
 A 2906, 3057  
 A 2994, 3017  
 A 3509, 74  
 A 4005, 2631  
 A 4139, 2728  
 A 4279, 3069  
 A 4369, 75  
 A 4422, 3072  
 A 4880, 2760  
 A 4915, 2634  
 A 4926, 88  
 A 5119, 2648  
 A 5148, 91, 3017  
 A 5153, 2632  
 A 5035, 290  
 A 6211, 2774  
 A 6306, 2632  
 A 6552, 2632  
 A 6757, 2586  
 A 6792, 1374  
 A 6907, 1025  
 A 7351, 2633  
 A 7404, 2760  
 A 7426, 2773  
 A 7597, 2582  
 A 7860, 2630  
 A 8062, 3011  
 A 8607, 3079  
 A 8809, 3077  
 A 9022, 2631  
 A 9230, 91  
 A 9285, 91  
 A 9570, 2497  
 A 9791, 86  
 A 9851, 941, 945  
 A 9872, 3017  
 A 10081, 3073  
 A 10798, 72

O 4916, 3070

#### Applications

#### Privileges

#### Patents

Apr 24, 1883, 1632, 2944  
 Aug 28, 1893, 3062  
 Feb 9, 1895, 3062  
 July 15, 1895, 3062  
 Mar 26, 1897, 3063, 3070  
 July 9, 1898, 2659  
 Aug. 14, 1909, 2399, 3030  
 Mar 12, 1910, 3032, 3035  
 Mar 16, 1910, 2399,  
 3012, 3013, 3025, 3030  
 July 21, 1910, 2399, 3030  
 Jan 14, 1911, 3032, 3035  
 Mar 9, 1911, 2399, 3012,  
 3013, 3025, 3030  
 July 18, 1911, 2671  
 112, 287, 311  
 259, 2588  
 387, 1600  
 189, 1157  
 483, 1117  
 184, 1107, 1116, 1117  
 565, 1161  
 569, 290, 306  
 610, 2588  
 646, 290, 307  
 705, 2606  
 812, 2924  
 848, 3077  
 880, 2992  
 967, 312  
 968, 3076  
 985, 291, 292, 312  
 967, 292  
 1063, 1151, 1359  
 1210, 284, 316  
 1301, 2497  
 1365, 2924  
 1376, 2759  
 1394, 2593  
 1450, 2924  
 1524, 292, 312  
 1576, 287, 311  
 1662, 1151  
 1691, 2725  
 1753, 2562  
 1771, 1151  
 2023, 428  
 2159, 1117  
 2661, 2660  
 2336, 290, 306  
 2739, 74

2774, 2762  
 2788, 2924  
 2805, 987  
 2945, 287  
 2989, 2619  
 3031, 2608, 3057  
 3043, 289, 315  
 3051, 2660  
 3198, 2777  
 3207, 2861  
 3229, 290, 306  
 3361, 2671  
 3617, 2763  
 3676, 75, 85  
 3638, 91, 138  
 3677, 2924  
 3807, 290, 306  
 3881, 2766  
 3962, 291, 308  
 4132, 901  
 4205, 818, 985  
 4224, 2629  
 4436, 2924  
 4538, 151  
 4549, 2924  
 4602, 290, 306  
 4642, 242, 2538, 3033,  
 3034, 3035, 3036,  
 3037, 3038, 3039,  
 3041, 3053  
 4687, 2631  
 4767, 3076  
 4803, 3023  
 4836, 2924  
 4918, 3082  
 5062, 290  
 5195, 2622, 2644  
 5140, 2992  
 5524, 1629, 1804, 1872,  
 2974  
 5592, 3026  
 5640, 2631  
 5711, 3076  
 5792, 480  
 5849, 291, 310  
 6007, 2671  
 6008, 2394  
 6064, 92  
 6159, 92  
 6251, 429  
 6441, 2262  
 6455, 2687  
 6545, 2538  
 6651, 2924  
 6652, 2924  
 6673, 2506  
 6712, 2674, 2677  
 6713, 1788  
 6843, 85



**Austria**

6947, 2625	11876, 2924	18747, 2924
7074, 2924	11879, 85	18861, 2924
7077, 2924	12113, 2737	18881, 2924
7325, 291, 308	12176, 2924	18983, 2924
7574, 2887	12287, 1107, 1161	19037, 2635, 30
7720, 2736	12388, 2636	19041, 3067, 30
7973, 463	12421, 2983	19063, 2924
8056, 1381	12431, 3001	19064, 460
8165, 3059	12602, 1157	19122, 2759
8171, 132	12716, 2924	19308, 2525
8192, 2540	12970, 291, 308	19613, 463
8350, 2622, 2644	13100, 2924	19708, 1350
8442, 2600	13163, 1890	19777, 426
8487, 2924	13365, 1350	19854, 2924
8490, 2924	13832, 2753	20004, 2924
8506, 92	13838, 2540, 2541	20024, 274
8732, 3023	13851, 2606	20407, 3073, 307
8776, 3017	14037, 2671, 2774	20411, 2768
8798, 2924	14060, 2924	20714, 425
8825, 3023	14064, 2924	20804, 2680
8979, 904	14065, 2924	21118, 2623, 262
9150, 456	14367, 2924	21119, 89, 217, 2
9192, 2604	14423, 292, 314,	21164, 1152
9193, 2604	14566, 2630	21182, 2600
9206, 904	14736, 2748	21270, 3060
9374, 2924	14741, 2680	21244, 2604
9384, 2924	14885, 456	21245, 2604
9416, 3001	14886, 415, 428	21305, 1380, 139
9483, 2924	14889, 2924	21431, 431
9533, 3042	15077, 2716	21601, 1292
9545, 2716	15112, 2737	21614, 3060
9548, 2636, 3074	15235, 2924	21652, 2924
9957, 2540, 2541	15339, 1108, 1117	21654, 2924
10001, 2924	15377, 1108	21655, 2924
10004, 2924	15491, 2924	21683, 2528
10016, 2527	15751, 1152	22496, 2650
10263, 92	15782, 2924	23046, 306
10344, 2532	16112, 3064, 3072, 3073	23146, 290
10510, 1117	16116, 1116	23151, 1785, 2754
10511, 1117	16176, 2924	23234, 985
10531, 2924	16377, 3029	23240, 2527, 253
10544, 2924	16505, 2924	23242, 2525, 252
10675, 1151	16814, 2924	23370, 2924
10786, 2924	16941, 2737	23382, 2924
10962, 1020	17137, 2683	24085, 431
10987, 305	17152, 3072	24086, 456
11806, 2777	17243, 2924	24374, 693
11066, 91, 92, 103	17370, 2924	24666, 2705
11186, 2924	17433, 2563	24849, 2625
11204, 2589	17456, 149, 150, 3007	24952, 2576, 2578
11301, 1350	17459, 2924	24957, 2629
11344, 2532	17523, 2591	25031, 2625
11376, 2645	17684, 2580	25175, 2635, 3074
11497, 2778	17739, 1224	25223, 2772, 2777
11509, 27	18082, 2636	25239, 2622
11648, 2924	18454, 74	25351, 2924
11694, 2924	18581, 2609	25504, 2924
11677, 695	18658, 2689	25506, 456
11697, 2737	18740, 2924	25570, 2582

26211, 1107	31391, 140, 2399, 2494,	35085, 2924
26335, 2539	3006, 3024, 3025,	35120, 2924
26396, 429	3028, 3030, 3040	35254, 2924
26486, 2624	31674, 2518	35264, 89, 2654
26684, 986, 908, 1392	31730, 274	35267, 3067
26785, 2924	31778, 2636	35268, 83
27651, 2924	31802, 72, 2631	35269, 90, 2060
28855, 2924	31802, 291, 308	35272, 00
28970, 2924	31951, 2924	35275, 90, 91, 2000
27037, 2632	31962, 2924	35448, 3003
27038, 2634	32158, 2024	35563, 2924
27060, 2652	32175, 2544, 2545, 2660	35606, 2924
27202, 2678	32377, 90, 2644	35666, 3023
27293, 984, 2550, 2675	32449, 1342, 1350	35703, 2533
27312, 2924	32492, 3002	35955, 2962
27339, 1372	32553, 2634	36008, 1350
27352, 415	32614, 2924	36099, 1350
27671, 2654	32637, 3025	36126, 3009
27691, 1372	32783, 2625, 2636, 2651	36719, 928
27726, 884	32902, 1152	36750, 2716
28151, 89	32904, 1020	36792, 818, 986
28236, 2671	32974, 391, 451	36847, 292, 315
28290, 2648	33082, 2924	36922, 2634, 3073
28436, 1350	33087, 884	37030, 562
28581, 83	33278, 2640	37119, 89
28595, 82	33440, 1369	37137, 3070
28680, 985	33450, 2527	37138, 3009
28949, 2527, 2531	33452, 3013	37331, 2924
28950, 2527, 2531	33453, 2527, 2531	37380, 415
28968, 985, 991, 1392	33484, 2532	37417, 458
29053, 2643	33485, 884, 2532	37549, 2924
29068, 456	33486, 884	37551, 2558
29082, 2924	33498, 2614, 2634	37553, 2396
29203, 3024	33508, 2650, 3060	37835, 425
29219, 3022	33657, 2396	37836, 425
29281, 2765, 3045	33668, 2396	38100, 2533
29381, 2761	33678, 92, 2040, 3068,	38203, 2533
29478, 1297	3069	38297, 456
29604, 1157	33685, 274	38532, 2554, 2649
29738, 424	33720, 2532	38663, 2660
29829, 2049	33840, 2644, 2651	38809, 2631, 2655
29831, 2765, 3045	34022, 1342, 1350	38882, 2524
29832, 2765	34029, 884	38937, 986, 1000
29835, 3068	34031, 938	38951, 2772
30092, 2532	34101, 2635, 3072, 3074	38990, 2629
30367, 2000	34155, 2762	39015, 424, 425
30449, 83	34170, 855, 985, 998	39350, 1265
30457, 1372	34247, 3023	39440, 2774
30496, 86	34267, 2924	39443, 2528
30705, 72	34271, 2924	39444, 2528
30844, 2777	34272, 3060	39460, 2523
30845, 2530, 2833	34507, 086	39579, 2924
30943, 2924	34568, 686	39581, 2924
30964, 2924	34576, 855, 985	39582, 2924
30967, 2924	34908, 3029, 3042	39590, 2924
31177, 2924	35015, 3007	39963, 2716
31195, 3023	35059, 460	39998, 2687
31203, 3012	35080, 2017	40076, 2639
31379, 2756	35081, 2924	40080, 2777

**Austria**

- 40163, 2755
- 40422, 1350
- 40449, 425
- 40471, 2924
- 40472, 2924
- 40483, 2675
- 40528, 292, 314
- 40569, 2714
- 40613, 2647
- 40619, 2924
- 40627, 2924
- 40657, 291, 309, 310
- 40667, 855
- 40676, 2647
- 40768, 2924
- 40770, 2924
- 40840, 884
- 40843, 884
- 40901, 1271
- 41106, 2678
- 41165, 2924
- 41303, 849
- 41401, 2398, 3007, 3029
- 41479, 213
- 41480, 2769
- 41517, 2755
- 41706, 458
- 41720, 74
- 41806, 2533
- 41811, 3000
- 41813, 3002
- 41831, 3018, 3051
- 41887, 2924
- 41889, 2924
- 41890, 2924
- 41931, 814, 985
- 41940, 2924
- 41946, 999
- 42233, 2752
- 42260, 2536
- 42407, 911
- 42408, 1424
- 42440, 3033
- 42479, 292, 313
- 42496, 2768
- 42598, 2527
- 42647, 425
- 42740, 1890, 2623, 2629
- 43016, 2924
- 43017, 2924
- 43100, 3001
- 43239, 1306
- 43354, 3081
- 43386, 2705
- 43463, 2759
- 43492, 814, 985
- 43628, 2395
- 43640, 79, 2630
- 43667, 2924
- 43740, 958, 990, 992
- 43742, 308
- 43749, 1424, 1460
- 43754, 1152
- 43921, 2924
- 43928, 2924
- 44104, 2423
- 44374, 3002
- 44447, 2924
- 44713, 279
- 45188, 452
- 45320, 2628, 2630, 2640
- 45391, 1086
- 45412, 2679
- 45445, 3000
- 45474, 2659, 2768, 2773
- 45487, 2768
- 45691, 2924
- 45715, 2924
- 45765, 149, 150, 3015, 3016
- 45785, 2768
- 45892, 1020
- 46036, 3058
- 46546, 3074
- 46655, 2647
- 46701, 82
- 46861, 87, 2631
- 46991, 3026, 3030
- 47105, 985, 991
- 47147, 87
- 47233, 2408
- 47237, 2487, 2538, 2637, 2774, 3050, 3060, 3080
- 47238, 2538, 2637, 3080
- 47239, 2637, 3080
- 47244, 3019, 3035, 3036
- 47674, 2763
- 47679, 2774, 3045
- 47697, 3033
- 47729, 2924
- 47777, 2631, 2649
- 47780, 2557
- 47889, 3033, 3034
- 47899, 3025, 3036, 3038, 3045
- 48226, 925
- 48323, 937
- 48337, 3003
- 48338, 3003
- 48537, 695
- 48815, 884, 892, 896
- 48816, 884, 892, 986
- 48817, 2924
- 49009, 2768
- 49035, 884
- 49170, 88
- 49177, 3015
- 49226, 683, 925
- 49481, 1392
- 49651, 3071
- 49729, 2533
- 50004, 430
- 50030, 2650
- 50286, 2524
- 50331, 3010
- 50405, 1287
- 50506, 87
- 50652, 986, 990
- 50656, 3026, 3030
- 50679, 3037, 3042
- 50659, 2693
- 50686, 2688, 2747
- 51012, 2533
- 51094, 3025, 3030
- 51096, 1072
- 51140, 2633
- 51174, 3077
- 51413, 855
- 51414, 855
- 51556, 2684
- 51799, 87, 2653
- 51800, 2745
- 51807, 2924
- 51926, 995
- 52178, 1219, 1221
- 52179, 1219, 1221
- 52289, 3010, 3017
- 52291, 2659, 2768
- 52338, 431
- 52441, 84
- 52507, 2762
- 52690, 719, 721
- 52886, 2924
- 52919, 2715
- 53023, 685
- 53109, 3019, 3037
- 53146, 2760
- 53148, 995
- 53207, 2393, 2562
- 53291, 884
- 53482, 2395
- 53534, 1402
- 54240, 2760
- 54243, 918
- 54260, 2654
- 54262, 2773
- 54416, 2687, 2712
- 54428, 2654
- 54429, 1066
- 54483, 3074
- 54512, 2493, 3016
- 54719, 2774, 3050
- 54785, 2634
- 54819, 91, 2655, 3
- 54958, 2768
- 54964, 1073

54965, 1402  
55166, 664  
55235, 1020  
55238, 987  
55242, 995  
55243, 995  
55244, 995  
55442, 3004  
55450, 2512  
55527, 3032  
55560, 2924  
55567, 2924  
55570, 2924  
55650, 1006  
55654, 3044  
5749, 3073  
6026, 2607  
6429, 921  
6430, 921  
6595, 2645  
6641, 2924  
6642, 2924  
6757, 3067  
6825, 431  
6861, 431  
6862, 431  
6863, 2705  
6889, 274  
6950, 2768  
6952, 2763  
7319, 2924  
7421, 3015  
7422, 2650, 2763  
7428, 2650, 2763  
7613, 2650  
7698, 89, 2651  
7706, 2550, 2761, 2765  
7715, 2645, 2651  
7875, 2423  
7878, 2423  
7916, 2519  
7971, 2693  
7984, 3057  
7989, 660  
58102, 660  
58168, 921  
58173, 900  
58185, 1890  
58193, 900, 919  
58229, 2631  
58303, 2683  
58375, 3074  
58408, 904  
58471, 2692  
58860, 2924  
58870, 2924  
58959, 685  
59129, 456  
59154, 714

59310, 1402  
59478, 2468  
59580, 3050  
59903, 2924  
59904, 2924  
60039, 3014, 3075  
60087, 2393  
60110, 1006  
60255, 1006  
60256, 1006  
60257, 1006  
60263, 2924  
60264, 664  
60287, 1004  
60432, 1400  
60447, 3015  
60565, 1358, 1392  
60602, 2924  
60852, 2924  
60855, 2924  
60897, 2722  
60902, 1006  
60964, 1339, 1350  
60969, 1207  
60973, 1006  
61055, 2608  
61387, 884, 994, 986  
61472, 2602  
61602, 3074  
61603, 2716  
61607, 2716  
61692, 2893  
61811, 3064  
61819, 2618  
62169, 992  
62173, 1389  
62283, 2465, 2468  
62370, 2766  
62395, 2678, 2683  
62490, 2906  
62524, 918  
62617, 664  
62736, 2924  
62809, 3050  
62810, 3064  
63180, 2761, 2765  
63222, 2716  
63438, 2646, 2770  
63524, 127  
63526, 37  
63533, 3002  
63534, 2993  
63556, 2762, 3047, 3079  
63635, 3068  
63956, 431  
63966, 2492, 2769, 3043  
64393, 2548  
64564, 3074  
64651, 2694

64798, 3076  
64976, 1858, 2924  
64979, 2408  
65007, 3001  
65040, 3014, 3044  
65224, 817  
65942, 1117  
65959, 1020  
66465, 3047, 3051  
66211, 1308  
66307, 846  
66721, 2538  
67116, 1308  
67180, 1073  
67676, 2675  
67690, 1072  
67812, 3013  
67814, 3061  
67942, 3020  
68855, 1236  
69136, 271, 3080  
70771, 1122  
70772, 3062  
70783, 3061  
71146, 989  
71273, 269  
71348, 2996  
72211, 940  
72460, 2997  
72493, 2542  
72643, 2582  
73001, 3060  
74596, 2764  
75153, 456  
80118, 1909  
80605, 3049  
80901, 2995

# AUSTRO-HUNGARIAN

2387, 1635  
Nov. 4, 1886, 2650, 2694  
9475, 2622  
22419, 2575  
31310, 2622, 2651  
44671, 77  
49212, 2575  
54062, 2622

# BELOIAN Applications

Feb. 4, 1890, 478  
Aug. 18, 1911, 569

# Patents

15482, 1779  
17259, 1900

## Belgian

49853, 1626, 1804, 1872,	132273, 71, 2624	142091, 2094
2073, 2974	132737, 2993	142144, 2414
55383, 2061	133728, 2601	142335, 204
56230, 2384, 2577, 2618,	133749, 3065	142571, 2601
2601	133898, 2415	142758, 928, 1292
54408, 2413	133967, 284	142809, 1290
61821, 2920	134128, 1024	142963, 174
62746, 274	134712, 1157	143063, 2414
65024, 2615	134987, 2415	143163, 2388
68346, 1631	135160, 843	143164, 2499
68890, 2622, 265	135251, 102	143386, 2396
70865, 1875	136287, 2415	143569, 89, 91
72804, 2888	136450, 1037	143570, 89
74802, 2659, 2691	136522, 1157	143691, 1854
77308, 2575	136581, 1383	143854, 2414
77879, 2025, 2610,	136612, 2415	143872, 2518
2675, 2719	136654, 2718	143918, 2414
78013, 2580	136757, 2415	143961, 1313
80419, 1825, 2049	136942, 2414	144234, 1785, 1790
81115, 2575	137080, 2415	144371, 3070
84774, 2623, 2620	137372, 2601	144429, 851
85083, 2251	137388, 2415	144800, 2414
86100, 77	137467, 1215	144867, 2601
87455, 2049	137510, 1116, 1117	145168, 1389
89302, 2747	137577, 3006, 3018, 3019,	145207, 89
94383, 2745	3024	145281, 103
95170, 1956	137751, 1151	145350, 1301
97197, 2612	137752, 1151	145510, 85
101094, 2611, 2670	137753, 1151	145542, 1784
101872, 2700	137777, 2415	145871, 946
103093, 3062	137962, 1286	146215, 2414
106692, 2738	138197, 1292	146267, 2737
113156, 3006	138452, 2635	146287, 85
118877, 97	138462, 3024	85, 3072, 3078
125652, 2414	138487, 2021, 209	00, 2415
125843, 1013	138690, 2647	70, 3072
125943, 2415	138707, 2650	37, 1117
125948, 2443	138726, 2635	06, 2416
126262, 2635, 2648	138952, 4	74, 2992
126544, 2647	139066, 2415	79, 85, 92
126614, 946	139111, 2601	46, 1789, 2595
126944, 1282	139356, 2415	89, 2955
127142, 1269	139377, 2761	90, 1229
127343, 1313	139852, 2414	50, 2568
127545, 2442, 2443	139919, 204	60, 1785, 1790,
128068, 2622, 2640	140100, 1157	50, 2078
128392, 2388, 2576	140349, 2415	62, 911
128925, 2031, 2093,	140648, 2415	34, 2417
2111	140695, 1117	52, 2806
129414, 2414	140696, 1117	71, 3078
130448, 2522	140816, 2415	01, 912
130689, 946	140884, 1161	37, 2601
130702, 2617	141090, 2601	57, 1203
130882, 337	141411, 946	74, 1301
130136, 946	141646, 2955	82, 2754
130172, 2415	141697, 85	03, 2624
130805, 2519	141721, 85	52, 811
130940, 2687	141756, 85	93, 2416
131113, 840	141875, 3075	20, 1394

# INDEX OF PATENTS

3095

150905, 3078	163460, 1152	170552, 2736
151333, 2414	163518, 2737	170871, 27
152560, 1108	163559, 2687	171192, 27
152676, 1229	163658, 2524	171371, 2920
152713, 1161	163659, 2525	171434, 2565
152925, 2416	163683, 2525	171535, 946
153200, 90	163688, 1303	171550, 2417
153548, 2415	164245, 2002	171743, 415
154123, 846	164577, 927	171765, 2710
154471, 2416	164598, 2416	171980, 89, 217, 2636
154569, 1157	164620, 1283	172241, 1033
154790, 2601	164621, 1203	172250, 722
155007, 846	164703, 2736	172521, 850
155167, 2501	164791, 1215	173572, 3067, 3071
155185, 2079, 2625	164819, 1108	173643, 3070
155501, 1117	164891, 1117	173651, 2417
155569, 1350	164907, 89, 3071, 3077	173677, 2417
155637, 85	164908, 89, 3071, 3077	173882, 2859
155664, 3068	164909, 3067	174129, 2416
155776, 1363	164930, 2601	174140, 646
156195, 1121	165133, 884	174194, 3063
156203, 695	165182, 2417	174195, 2651, 3068
156330, 916	165400, 2417	174524, 2734
156619, 1292	165540, 2416	174819, 2769
156974, 1161	166239, 2955	174934, 943
157003, 1119	166300, 2893	175310, 2624
157100, 2636	166523, 1108	175472, 946
157234, 2527	166525, 884	175690, 1293
157589, 2417	166688, 27	175756, 3067
157681, 2518	167085, 2601	175773, 2012
158179, 1789, 2595	167364, 1030	175866, 3069
158489, 2761	167376, 984	176057, 1782, 2669
158573, 2643	167540, 2736, 2737	176100, 850
158923, 1151	167784, 1206	176189, 1236
159113, 2416	167802, 2417	177128, 2417
159200, 2578	167807, 946	177495, 1785, 2754
159293, 2532	167849, 2795	177734, 1380
159337, 2532	167884, 2416	177833, 1956
159445, 2415	167996, 2416	178039, 3002
159536, 2416	168026, 2747	178221, 2630, 2649
159891, 1033	168556, 2632, 2638	178269, 946
159893, 2417	168666, 2686	178715, 3072
159971, 2737	168698, 2415	178733, 3072
160076, 1369	168747, 2416	178768, 2635, 3072
160067, 1029	168806, 2993	178775, 3072
160378, 3013	168839, 2687	178792, 3072
160924, 1363	169185, 2079	178802, 946
161025, 2416	169302, 2720	178849, 2777
161248, 2532	69443, 3076	178872, 2554
161519, 2993	69728, 2882	178980, 2601
161717, 1157	69912, 1119	179220, 2606
161845, 1034	70057, 946	179515, 2882, 2884
161881, 2417	70071, 2416	179782, 1152
161968, 2415	70379, 2736	180006, 2675
162590, 911	70380, 2736	180098, 1786
162701, 217	70381, 2736	180126, 2623, 2635
163050, 1244	70403, 2417	180127, 2623, 2635
163251, 3013	70449, 2415	180206, 1233
163431, 1203	70552, 2736	180370, 89, 2633

## Belgian

180406, 911	184431, 2528	189218, 945
180585, 2650, 3073	184432, 2528	189298, 2617
180590, 2626, 2655	184435, 2632	189353, 3069
180718, 2653, 2675	184456, 1789, 2652	189389, 2756
180719, 2624, 2675	184562, 2895	189445, 1785
180720, 1785, 2676	184573, 946, 2649	189469, 2674, 27
180841, 693	184680, 2533	189499, 2630
181151, 1780, 2669	184788, 2461	189754, 74
181171, 1233	184801, 2904	189782, 2005
181194, 3043	184856, 2418	189804, 2610
181209, 2527	184896, 2533, 2674	189814, 2630
181333, 2630	185342, 2554	189817, 2649
181359, 83	185425, 2557	189828, 2635
181360, 83, 89	185533, 2625	189870, 86
181504, 3053	185537, 2558	189912, 2674
181525, 90	185553, 2646	189918, 79, 26
181651, 2630	185616, 2569	190009, 240, 18
181703, 2601	185628, 2631	190143, 945
181747, 1872, 2695	185671, 337, 2624	190154, 1878
181944, 83, 89	185672, 337, 2624	190204, 697
181945, 83	185701, 3004	190205, 697
182050, 3043	185731, 2625, 2640	190357, 2418
182051, 3013, 3043	185739, 1224	190509, 89
182052, 3041, 3043	185742, 2554	190625, 210
182063, 1282	185791, 1031	190631, 2638
182087, 696	185822, 2623	190636, 79
182216, 3007	185875, 89	190652, 134
182289, 72	185997, 2648	190677, 2419
182368, 91	186015, 2648	190682, 946
182386, 74	186019, 1032	190772, 695
182432, 2395	186030, 911	190840, 1033
182455, 74, 91	186040, 944	190844, 2634
182486, 91	186098, 92	190920, 2552
182532, 2649, 3065	186233, 88	190977, 2645
182680, 839	186471, 72, 2631	191066, 695
182834, 231	186556, 3068	191080, 88
183058, 72	186658, 2577, 2621	191133, 2396
183197, 83, 2633	186698, 83	191165, 2633
183198, 83, 2633	186766, 90	191166, 2633
183338, 3065	186898, 89	191168, 2633
183371, 1034	187054, 2634	191178, 3069
183406, 2639, 2649	187283, 74	191200, 79
183438, 2416	187284, 2634	191273, 2519
183521, 86	187308, 2398, 3007, 3029	191380, 2418
183603, 89	187542, 834	191460, 98
183694, 2528	187661, 946	191501, 3005
183711, 2527	187728, 2635	191508, 700
183712, 2527	187846, 2525	191531, 2545
183782, 2625, 2636, 2640	187896, 1233	191747, 2837
183841, 2419	188044, 2601	191819, 2532
183877, 3000	188081, 1372	191843, 3069
183940, 693	188162, 1967	191889, 2532
183945, 89	188233, 2635	191972, 1872, 24
184008, 2419	188238, 2148	191981, 2569
184078, 2632	188519, 83, 89	191987, 2527
184228, 2636, 2647	188529, 89	192074, 268
184272, 2777	188779, 943	192328, 2647
184417, 2443	188787, 2420, 2463, 2478	192523, 2532
184426, 3023	188838, 3004	192529, 72, 24

192500, 2771	197484, 3013	201418, 2623, 2649
192853, 2636	197512, 2882, 2884	201459, 2519
192856, 80	197741, 2558	201657, 2007
192889, 1372	197790, 2519	201695, 1890, 2649
192911, 2636	197837, 2525	201746, 201
193002, 74	197838, 2525	201751, 2655
193262, 695	197839, 2525	201786, 2418
193356, 2419	197890, 2630	201874, 700, 720
193399, 2649	197896, 2634	201965, 2533
193506, 2519	197920, 2894	202371, 1086
193681, 2878	197938, 2554	202495, 2533
193682, 2878	197985, 2554	202536, 3003
193683, 2878	198000, 2634	202751, 2629
193694, 2418	198051, 685	202785, 2736
193724, 3005	198121, 818	202795, 931
194268, 2606	198137, 2601	202820, 2679
194275, 700	198423, 1342	203012, 91
194277, 700	198520, 2894	203196, 79, 2649
194363, 2626	198563, 2609	203256, 2601
194392, 2533	198691, 3446	203274, 1779
194467, 2527	198725, 2558	203342, 1076
194612, 2418	198836, 3050	203628, 2765
194658, 2552	198897, 2558	203631, 915
194718, 2894	198908, 3067	203699, 2524
194741, 72, 264	198984, 149, 150,	203784, 685
194778, 2524	3015, 3016	203808, 2523
194784, 2420	198985, 149, 150,	204054, 2762
194836, 2539	3015, 3016	204299, 2630, 2649
194941, 86	199053, 2417	204520, 2898
195098, 2508	199171, 2804	204557, 74, 91
195233, 2647	199245, 607	204664, 943
195314, 2894	199328, 1786	204696, 943
195338, 2601	199492, 3009, 3011	204719, 943
195452, 2630, 2653	199714, 2898	204811, 2773
195474, 1032	199745, 693	204839, 2007, 2620
195477, 2647, 2649	199881, 87, 2649	204939, 2674
195495, 2647	199882, 87	205071, 2962
195508, 2618	199923, 1152	205243, 87
195551, 850	200136, 1076	205255, 2524
195684, 89	200411, 2650	205459, 2768
195690, 2558	200466, 815	205460, 2768
195773, 2762	200487, 2650	205510, 2524
195837, 2999, 3059	200494, 2518	205537, 2527
195838, 3059	200530, 2396	205672, 86
195839, 3009, 3037, 3053	200735, 685	205723, 815
195840, 3013, 3046	200795, 695	205765, 2523
195864, 2639	200893, 2096	205943, 1030
195899, 2624	200966, 2533	206034, 2528
196219, 72	200970, 2635	206108, 945
196647, 27	201016, 2525	206109, 945
196703, 1291	201017, 3043	206404, 2567
196777, 2736	201043, 2525	206691, 2879, 2894, *
196778, 2736	201019, 2525	206788, 86
196779, 2736	201043, 1234	206905, 918
196780, 2624	201068, 2557	206929, 2625
196857, 88, 2646	201102, 1133	207073, 2736
197000, 2756	201132, 3074	207221, 911
197313, 2554	201286, 2527	207237, 722
197391, 1342	201406, 2651	207249, 1120



3098.

## Belgian

207287, 2527  
 207292, 1301  
 207403, 722  
 207484, 3077  
 207516, 722  
 207839, 3013  
 207912, 2633, 2650  
 207993, 2628  
 208141, 2894  
 208231, 695  
 208282, 2624  
 208289, 1372  
 208443, 2607  
 208526, 2557  
 209075, 915  
 209510, 2625  
 209561, 3060  
 209675, 2776  
 209822, 2557  
 209895, 870  
 209896, 2418  
 210024, 2554  
 210025, 74  
 210029, 1123  
 210489, 77, 2631  
 210591, 2560  
 210816, 3073  
 210904, 2770  
 210951, 1033, 1899  
 210965, 2777  
 211028, 2609  
 211215, 1303  
 211270, 2555  
 211302, 700  
 211349, 102  
 211350, 2525  
 211385, 567  
 211508, 2592  
 211711, 700  
 211910, 696  
 211948, 928  
 211957, 946  
 212042, 2418  
 212052, 2094  
 212126, 2636  
 212157, 2624  
 212164, 2520  
 212194, 2773  
 212348, 2649  
 212477, 2569  
 212498, 2418  
 212647, 915  
 212736, 2624  
 212737, 2633  
 212788, 2554  
 212930, 1086  
 213236, 2624, 2649  
 213264, 2525  
 213364, 2568

## INDEX OF PATENTS

213374, 2630  
 213576, 2768  
 213625, 2525  
 213650, 814  
 213667, 2525  
 213704, 946  
 213757, 2554  
 213988, 336  
 214234, 2631  
 214256, 2556  
 214380, 2738  
 214426, 74  
 214478, 2554  
 214671, 3031  
 214711, 2554  
 214842, 3081  
 214844, 1280  
 214932, 77  
 215187, 2624  
 215352, 2624  
 215377, 2631  
 215408, 1212  
 215493, 1086  
 215662, 1875  
 215784, 336  
 215985, 336  
 216051, 2591  
 216341, 88  
 216447, 2630  
 216546, 88  
 216668, 3042  
 216728, 695  
 216802, 77, 2631  
 216919, 3023  
 216950, 3065  
 217061, 928  
 217148, 2555  
 217312, 90  
 217316, 705  
 217328, 697  
 217548, 77  
 217695, 1028  
 217837, 149, 150,  
 3015, 3016  
 -218026, 697  
 218118, 73  
 218176, 2629, 2649  
 218192, 2894  
 218232, 1460  
 218393, 2878  
 218474, 944  
 218535, 2752  
 218933, 843, 142  
 218994, 1224  
 218996, 336  
 219271, 905  
 219362, 2420  
 219502, 3000  
 219580, 700  
 219727, 1224  
 219865, 1152  
 219909, 3000  
 220225, 3053  
 220442, 946  
 220462, 205  
 220478, 2735  
 220479, 2735  
 220823, 1214  
 220854, 2735  
 221089, 695  
 221344, 2631, 2649  
 221556, 2604  
 221644, 2524  
 221676, 2630, 2649  
 221951, 77, 2631  
 222106, 3026, 3037, 3042  
 222111, 922  
 222222, 918  
 222298, 74, 76  
 222416, 3044  
 222809, 696  
 222855, 3064  
 223996, 1785, 3019,  
 3035, 3036  
 224119, 685  
 224544, 684  
 224741, 1785  
 224877, 2524  
 224950, 3007  
 224987, 695  
 225041, 88, 2630  
 225128, 2419  
 225222, 1787, 1789  
 225335, 815  
 225343, 2738  
 225346, 2649  
 225463, 2552  
 225609, 2557  
 225728, 2558  
 225873, 2422  
 225909, 1727  
 225952, 918  
 225963, 2602  
 226091, 918  
 226119, 2422  
 226126, 2737  
 226135, 904  
 226216, 946  
 226272, 3069  
 226352, 88  
 226458, 1091  
 226490, 643  
 226582, 4, 3010  
 226657, 2650  
 226740, 2569  
 226766, 3743  
 226880, 202  
 226932, 2761

# INDEX OF PATENTS

3099

227047, 2650	234433, 3015, 3017	241250, 2399, 2534, 2012,
227339, 88	234494, 700	3013, 3025, 3030
227342, 904	234643, 944	241251, 3026, 3027, 3028,
227362, 3069	234732, 2555	3030, 3033, 3035,
227385, 3010	234753, 2421	3036, 3040, 3043
227549, 2614	234801, 2651	241252, 3035, 3040
227722, 86	234947, 695	241325, 2762
227869, 695	235360, 2768	241341, 2031
227910, 2693	235381, 2519	241649, 74, 2653
228121, 814	235612, 2518, 2519	241914, 2764
228365, 696	235631, 905	241975, 3042, 2057
228566, 695	235767, 2422	241976, 72
228578, 284	235885, 1031	242325, 946, 3061
228627, 2420	235935, 2761	242387, 2636, 2645, 2655
228740, 700	236060, 700	242513, 3067
228860, 1299	236061, 700	242522, 1033
229046, 3015	236204, 88	242574, 2895
229235, 884	236469, 2633	242735, 1786, 2754, 3046
229253, 1781, 1785	236527, 2647, 2648, 2762	242833, 1006B
229696, 3057	236549, 2647, 2650	243027, 2768
229401, 1293, 2629	236562, 722	243033, 2421
229404, 3075	237056, 77, 110, 2660	243162, 2660, 2675, 2752,
229407, 3075	237160, 2660, 2754	3060
229735, 2633	237222, 928	243329, 2996
229747, 2634	237230, 2660	243387, 91
229995, 3011, 3016, 3017	237351, 2419	243409, 2631
230732, 905	237471, 2632, 2650, 2660	243686, 2768
231217, 3004	237542, 696	243693, 2420
231227, 2636	237785, 1381	243694, 74
231270, 2765	237786, 1339	243897, 74
231279, 2655, 3018	237859, 2603	243928, 2981
231311, 1082	237870, 915	244126, 905
231614, 2622	237872, 2660	244151, 305
231641, 3065	237894, 1876, 2015, 2660	244303, 2643, 2660
231853, 2493, 3016	238165, 946	244384, 2414
232115, 1032	238479, 92, 2633	244470, 3012
232255, 3075	238869, 2649, 2660, 3072	244554, 89, 3065
232297, 2994	238913, 905	244700, 1006B
232471, 233	239097, 2421	244742, 946
232475, 79, 92, 2649	239187, 2423	244810, 1006B
2660, 2999, 3054	239281, 2420	244823, 2764
232551, 2421	239330, 1006B	244950, 3060
232622, 912	239564, 149, 150, 3007,	245524, 74, 2653
232696, 2660, 3032, 3035	3016, 3019, 3021	245532, 2497, 2498, 2624,
232890, 2768, 2774	239604, 308	3053
232980, 1386	239664, 2602, 2660	245575, 72
233028, 946	239891, 1787	245679, 2420
233101, 2775	240045, 2558	246164, 1006
233284, 2628	240076, 685	246181, 3070
233355, 912	240104, 949	246208, 905
233585, 1383	240116, 2768	246232, 2556
233765, 2768	240313, 2625, 2649	246250, 2399, 2012, 3025
233786, 3017, 3056	240319, 2396	246251, 2399, 3012, 3025
233792, 3015	240518, 1401	246438, 2633
233876, 3016	240636, 928	246523, 2776
234005, 938	240921, 696	246526, 2540
234301, 2642, 2921	241015, 1006B	246562, 3056, 3075
234302, 1789	241072, 2646	246684, 2979
234303, 86, 2650	241116, 2558, 3042	246732, 2423

## Belgian

247100, 946	252661, 72	256428, 1033, 1400
247161, 1006	252722, 2542	256447, 1074
247200, 2631, 2638, 2652	252772, 695, 852	256581, 1212, 1401
247213, 1402	252882, 3010	256596, 851
247552, 3080	252906, 2770	256752, 696
247690, 3064	252907, 3081	256877, 2630
247691, 2631, 2645	252908, 2770	256901, 3068
247692, 28, 2631	253126, 1295	257122, 2509
248086, 919	253128, 2468	257325, 3068, 3075
248154, 3069, 3071	253139, 2632, 3069	257401, 904
248272, 1004	253251, 1223, 1402	257404, 2006
248306, 2421	253252, 1389, 1402	257435, 928
248315, 2630	253253, 3008	257538, 2637, 2651
248521, 79	253381, 695, 852	257558, 843
248603, 2633	253398, 2630, 2645	257580, 815
248664, 2633	253427, 168, 660	257581, 3073
248907, 3007, 3060	253454, 3070	257847, 904
249158, 2421	253516, 2527	257874, 850
249254, 2397	253520, 618	258139, 2966
249325, 2634, 2806	253537, 92, 2650, 3068	258157, 1121, 1399
249348, 2765	253706, 2640, 2645	258323, 1362, 1402
250077, 2074, 3080	253805, 2558, 2633	258608, 1400
250115, 2390	253831, 2558	258631, 1207, 1401
250116, 2390, 2995	253855, 2618	258656, 2995
250117, 2390	253945, 98, 2628, 3021	258700, 1400
250118, 2390, 2542	254057, 104, 2602	258779, 3061
250135, 2993	254161, 80, 2642, 2654	258811, 2995, 2996
250302, 2527	254172, 2995	258963, 1027, 1399
250441, 71, 660	254219, 91	259019, 2758, 3044
250442, 71	254287, 1120, 1399	259073, 1784, 2387, 2576
250816, 2558	254354, 2602	259087, 1031
250926, 904, 916	254420, 1030	259112, 884
251000, 2633	254480, 705	259137, 3068
251010, 3010	254511, 2557	259219, 3073
251011, 3010	254537, 2007, 2626	259243, 2502
251071, 2979	254545, 1295, 1402	259249, 1363, 1402
251073, 2632	254591, 23, 37, 2630	259277, 2466
251118, 71, 3075	254893, 2681	259290, 843
251128, 73, 2640	254944, 284	259495, 3064
251147, 896, 946	254945, 209	259551, 2391
251191, 2632	255026, 2625, 2639	259566, 817
251266, 2632, 2652	255143, 1026	259742, 664
251266, 2422	255192, 88, 2634	259983, 961
251275, 2765	255276, 2582, 2613	260042, 618
251405, 3080	255404, 2614, 2626	260066, 1401
251556, 504	255536, 1372	260151, 2537, 2538
251637, 1090	255635, 664	260152, 2537, 2538
251796, 3046	255636, 311	260276, 28
251814, 2466	255690, 928	260290, 846, 1402
251829, 2632, 3069	255831, 957	260381, 944
252065, 1013	256019, 337	260780, 2804
252100, 1295, 1401	256046, 336, 2762	260794, 2604
252240, 2699	256110, 2589	261193, 944
252405, 2645, 3077	256175, 1400	261216, 664
252514, 2623	256281, 916	261288, 335, 3061
252581, 850	256353, 209	261327, 2777
252692, 2769	256395, 919	261449, 1222
252593, 1126	256401, 230	261496, 2765
252594, 2769, 3043	256412, 944	261693, 3061

261836, 3024  
261929, 701  
261981, 2546  
262118, 1855  
262142, 1031  
262208, 2390, 2423  
262309, 919  
262321, 918  
262367, 3073  
262377, 701  
262419, 919  
262543, 2421  
262545, 1223  
262810, 695  
262819, 944  
262989, 2628  
263133, 2630, 2635  
263225, 2967  
263359, 2623  
263428, 2580  
263473, 944  
277686, 1303

**BRAZILIAN**

**Patents**

813,  
1052, 1390

**CANADIAN**

**Patents**

11073, 2660, 2679  
12123, 2660  
12163, 2681  
11009, 2660  
14413, 2644  
15565, 1853  
19161, 2563  
20464, 2715  
20726, 2660, 2673, 2676  
21473, 2615  
21636, 2680, 2730  
21848, 2646  
23047, 2564  
23850, 2947  
24692, 1897  
28080, 2730  
30707, 2044  
30807, 2660, 2719  
31778, 2709  
32219, 2949  
32739, 77  
33568, 2747, 2748  
35253, 2643  
35821, 2694  
37433, 2959  
37884, 2251

38004, 1811  
38382, 2730  
38397, 2688, 2730  
40117, 2622  
40592, 2660, 2719  
41523, 2954  
41524, 1724, 2014  
41698, 2562  
44709, 2247  
44780, 2247  
44781, 2247  
44909, 2972  
45208, 2958  
45845, 3062  
45922, 2897  
46691, 2707  
46786, 2707  
46932, 2611, 2670, 2691  
47413, 2708  
48294, 2701  
51129, 2955  
51149, 2616, 2670  
51695, 2616, 2670  
51705, 2564  
52042, 2606  
55642, 2985  
58158, 2612  
58321, 2616, 2670  
58402, 2687  
58793, 2616, 2670  
60705, 85  
61147, 2606  
61157, 2606  
61694, 2566  
62042, 3058  
62187, 2612, 2660  
62188, 3024  
62831, 3063  
62852, 2793  
63101, 3006, 3018, 3019  
63387, 2635  
63674, 2606  
65301, 2645  
66000, 3064  
66462, 1820  
66548, 2660, 2701  
67833, 2943  
67854, 2731, 2733, 2736  
68050, 2944  
68305, 2733, 2737  
68820, 2748  
70735, 2731, 2733, 2737  
74322, 2255  
74322, 2255  
74803, 2704  
74804, 2704  
75281, 2732, 2737  
76148, 2532  
76637, 2532  
76638, 3060  
77698, 3078  
77779, 191, 2660  
77979, 204  
78060, 2578  
78586, 2565  
79695, 2660, 2679, 2724  
79696, 2660, 2687  
79890, 2732, 2733, 2737  
81207, 204  
81298, 92  
82572, 2735  
83090, 3075  
83522, 2595  
84014, 204  
84302, 2525  
84306, 2947  
84334, 2964  
84502, 2111  
84598, 2565  
84981, 2726  
84985, 2726  
85922, 3071  
86415, 2725  
86416, 2725  
86417, 2724  
86418, 2724  
86419, 2724  
86420, 2724  
86421, 2724  
86422, 2724  
86423, 2724  
86424, 2724  
86425, 2724  
86426, 2724  
86427, 2724  
86428, 2724  
86429, 2724  
86465, 2725  
86466, 2725  
86468, 2721, 2725  
86469, 2724  
86470, 2724  
86471, 2724  
86472, 2724  
86473, 2724  
86474, 2724  
86475, 2724  
86476, 2724  
86477, 2724  
86478, 2724  
86479, 2724  
86480, 2724  
86492, 2725  
86617, 2724  
86618, 2725  
86643, 2724  
86782, 2094  
89348, 2631

Canadian			
908560, 2724		120763, 3072	139025, 2564
90848, 3007		121286, 335	139033, 2768
94977, 88		121639, 592	139046, 150, 3012
94978, 83		121678, 2965	139235, 3043
95015, 2754		121835, 2713	139271, 2621
95927, 3083		122149, 2568	140321, 1401
96425, 92		122150, 2568	140322, 1401
99456, 2555		122151, 2568	141002, 2621
99505, 3076		122152, 2568	141034, 660
100206, 88		122153, 2568	141089, 660
100547, 2613		122154, 2568	141243, 1400
101114, 83		122329, 2594	142285, 306
102043, 2735		123118, 2568	142286, 306
102233, 72		123655, 2607, 2620	142287, 306
102276, 3068		123818, 2731, 2734, 2735	142288, 306
102824, 2606		123819, 2731, 2733, 2734	142289, 306
102920, 2623		2735	142290, 306
102921, 2623		123820, 2732, 2735	142468, 701, 709
103036, 2530		125224, 891	142469, 701, 709
103045, 2398, 3007, 3029		126816, 2566	142470, 701, 709
104856, 2630		127200, 2948	142471, 722
105213, 2566		127403, 2740	142472, 699, 702, 852
105214, 2567		127540, 1203	142484, 852
106374, 2017		127966, 2549	142508, 2705
107798, 3023		128722, 2759	142592, 306
107979, 72		128798, 2898	142543, 306
107996, 3060		128799, 2894	142874, 1400
108703, 2734		129107, 2768	143341, 1400
108705, 2567		129108, 2768	143602, 1400
109502, 2548		129265, 3025, 3036, 3038	143824, 1006B
109778, 1779		3045	143848, 1400
109912, 2524		129983, 2678, 3027, 3028	144184, 2725
110622, 2613		3040	144478, 1400
110927, 2533		130353, 2954	144479, 1400
111307, 2523		130354, 2954	144658, 2620
111308, 2523		131425, 2732, 2735	144760, 1400
111544, 2708		131434, 2588	144895, 1400
111552, 2482		131650, 701	145058, 1400
111663, 1871		131808, 2693	145059, 1400
111677, 2596		131990, 2711	145244, 1299
112552, 2533		132714, 685	145430, 1400
112788, 2710		132717, 306	145508, 900
113142, 2568		133161, 78	145824, 1400
113812, 3067		133197, 3015	145880, 660
114758, 2732, 2735		133997, 2768	146732, 2527
114815, 3069		134164, 2493, 3016	146794, 205
115132, 2776		134525, 1401	146912, 853
115328, 2841		135121, 664	146935, 1400
115479, 2768		136039, 2768	147423, 2390
116668, 6710		136222, 2768	147425, 2468
116733, 2772		136334, 2763	147578, 3043
117461, 2607		136378, 2732, 2733, 2737	147579, 3043
117579, 2566		136538, 2402, 3049	147735, 2391
117604, 3081		136785, 2607	147882, 1401
117739, 2768		137110, 2564	148140, 1401
117759, 2893		137314, 2608, 2620	148405, 660
117558, 2894		137540, 1399	149172, 2564
120214, 2754		137541, 700	150646, 2613
120762, 91		139024, 2564	150728, 331

- 150817, 660  
 150891, 1401  
 151445, 314, 660  
 151615, 1401  
 151959, 724  
 153444, 1400  
 153445, 660  
 153478, 1025  
 153528, 815  
 153539, 853  
 153563, 900  
 153694, 660  
 153727, 1006.1  
 154062, 170  
 154165, 312  
 154574, 900  
 154820, 660  
 155274, 3008  
 155500, 2621  
 155724, 3043  
 155784, 900  
 156341, 724  
 156378, 724  
 156382, 724  
 156390, 724  
 156533, 900  
 156534, 900  
 156535, 900  
 157489, 853, 992  
 157490, 853, 992  
 160682, 2776  
 160683, 2776  
 160736, 2768  
 160737, 2768  
 160738, 2768  
 160739, 2768  
 160740, 2768  
 160853, 900  
 160962, 853  
 161112, 724, 900  
 161113, 724, 900  
 161131, 853  
 161391, 900  
 161395, 504  
 161477, 1006B  
 161538, 1006.1  
 161566, 724, 900  
 161568, 852  
 161884, 1006.1  
 161932, 502  
 162025, 724  
 162040, 1401  
 162082, 1025, 1401  
 162161, 504  
 162163, 504  
 162172, 1006  
 162310, 1402  
 162393, 1025, 1401  
 162481, 660  
 162512, 724  
 162516, 1025, 1401  
 162565, 724  
 163400, 310  
 163922, 724  
 164154, 900  
 164541, 426  
 164820, 900  
 164839, 851, 900  
 164857, 901  
 164858, 901  
 164990, 2967  
 165213, 1517  
 165745, 900  
 165773, 1400  
 166035, 2961  
 166161, 900  
 166284, 1401  
 166632, 1401  
 166832, 901  
 166880, 901  
 166881, 901  
 166882, 901  
 166922, 673  
 166924, 673  
 166940, 1401  
 166941, 1400, 1401  
 167104, 900  
 167107, 1006.1  
 167108, 1006.1  
 167109, 1006.1  
 167110, 1006.1  
 167111, 1006.1  
 167142, 1006.1  
 167242, 1006.1  
 167446, 1401  
 167587, 724  
 167714, 2554  
 167827, 1852  
 168362, 660, 664  
 168603, 1005  
 169029, 1402  
 169164, 724  
 169162, 724  
 169163, 724  
 169301, 1004  
 169308, 2578  
 169470, 2578  
 169507, 2684  
 169556, 1401  
 169578, 2710  
 169850, 1025  
 169901, 1005  
 170435, 504  
 170723, 504  
 170773, 1831  
 170811, 1003  
 170816, 699, 853  
 170942, 2664  
 171097, 932  
 171881, 1402  
 171861, 2401  
 172242, 900  
 172576, 2608  
 173128, 2388  
 173157, 901, 916  
 173158, 901, 916, 1003  
 173159, 901, 937  
 173369, 1006B, 2552  
 173462, 1401  
 173693, 900  
 173954, 657  
 174360, 724, 689  
 174685, 847, 851, 900  
 174863, 2022  
 175000, 2424  
 175089, 2655  
 175107, 3032, 3039, 3048  
 175488, 1357  
 175646, 1400  
 175748, 1006.1  
 175749, 937  
 175750, 852, 937  
 175751, 852, 923  
 175849, 2412  
 175887, 848, 853, 1005  
 176011, 1339  
 176114, 1402  
 176178, 657, 1909  
 176609, 1858, 1859  
 176626, 839, 1006.1  
 177145, 1111, 1120, 1401  
 178118, 988  
 178237, 2997  
 178609, 2557  
 178878, 2607  
 178879, 2607, 2608  
 178880, 2607  
 178891, 664  
 178892, 664  
 179101, 1400  
 179118, 852  
 179556, 1388  
 179699, 2583, 2691  
 180459, 664  
 180612, 657  
 180816, 1006  
 180925, 27, 660  
 181044, 853  
 181062, 2423  
 181105, 724  
 181464, 2776  
 181465, 2776  
 181513, 657  
 181655, 2995  
 181656, 2995  
 181657, 2995  
 181770, 2602

## Canadian

182110, 2551, 2552	188637, 2426	194321, 2700
182260, 900	188636, 2426	194775, 1396
182348, 1906B	188801, 2554	194776, 1204, 1396
182387, 660	189318, 2607	194777, 1396
182581, 2590	189319, 2607	194795, 900
182582, 2590	189320, 2607	194796, 900
182746, 2551	189321, 2607	194797, 900
182877, 660	189600, 898	195076, 1400
182881, 1006B	189601, 898	195152, 1400
182910, 853	189602, 898	195279, 2397
183164, 657, 2064	189603, 898	195354, 2994
183250, 3014	189604, 898, 900	195559, 1739
183501, 2979	189634, 849	195602, 921
183806, 2896	189875, 2564	195703, 2558
184033, 2778	190042, 2553	195866, 2564, 2567
184055, 2897	190220, 3080	195897, 660
184065, 2590	190228, 2952	195943, 660
184093, 2718	190284, 747	196094, 2424
184506, 2776	190379, 2064	196150, 2505
184890, 2779	190746, 806	196151, 2501
185119, 848, 851	190747, 896, 936	196329, 660
185325, 709	190748, 896, 900	196490, 894, 930
185354, 2400	190755, 1111, 1121, 1122	196728, 2426
185670, 853	190799, 2608	196925, 2501
185724, 2679, 2685	190864, 283	196926, 2501
185743, 2424	190870, 1063	197046, 3023
185847, 688, 848, 853	191040, 2943, 2945	197134, 3049
185862, 2426	191254, 751	197250, 660
185893, 2806	191262, 2551, 2669	197405, 894
186045, 2891	191263, 2551, 2669	197827, 849, 1005
186155, 930	191264, 2765	197953, 2686
186179, 1006B	191265, 2551	198265, 3047
186251, 2400	191266, 2551	198325, 1876
186632, 3024	191311, 1348	198426, 2741
186634, 3023	191314, 1392	198560, 2249
186713, 660	191315, 1390, 1392	198561, 2966, 2983
186792, 1006B	191418, 2602	198562, 2966, 2983
186822, 2553	191425, 2551	198563, 2956, 2966
186823, 2553	191426, 2551	198770, 960
186824, 2553	191427, 2551	198898, 1006
186825, 2553	191428, 2765	198972, 3036
186910, 900	191429, 2551	199020, 2564
186911, 900	191561, 2551	199057, 2567
186962, 1111, 1120, 1401	191562, 2551	199100, 673, 709
187050, 724, 848	181563, 2551	199157, 1006B
187105, 1400	191800, 3013, 3041	199208, 2567
187173, 2513	191801, 3013, 3041	199796, 2557
187316, 660	191802, 3013, 3041	199907, 2557
187349, 103	192662, 1119, 1129	199908, 2557
187413, 1889, 1890	192666, 513	200396, 1400
187459, 3079	192815, 806	200407, 1005
187609, 2425, 2426	193036, 2551	200430, 1401
187645, 2778	193134, 2551	200433, 3039
187662, 674, 853, 989	193235, 2779	200469, 1005
187937, 853	193579, 747	200433, 1006A
187949, 285, 660	193945, 2408	201034, 1006A
188363, 848, 894	194062, 2399	201035, 1006A
188609, 2778	194081, 2778	201036, 1006A
188636, 2426	194262, 3067	201037, 1006A

201038, 1006*B*  
201040, 1205, 1006*A*  
201050, 1005, 1006*A*  
201075, 1006*B*  
201078, 1006*B*  
201362, 1400  
201366, 1006*A*  
201367, 1006*A*  
201368, 1006*A*  
201420, 2764  
201459, 1006*B*  
201460, 1006*B*  
201462, 1006*A*  
201480, 1004  
201481, 1004  
201482, 1004, 1402  
201490, 1006  
201498, 1006  
201664, 3047  
201664, 3047  
201744, 1005  
201883, 1006*A*  
201885, 2607  
201889, 664  
201912, 2609  
201913, 2607  
201926, 1005  
202066, 1005  
202073, 1005  
202135, 2446

## CAPE COLONY

1280, 1161  
1445, 1161  
1446, 1161

## CAPE GOOD HOPE

Dec. 17, 1889, 77

## CEYLON

3451, 1890, 77

**DANISH**

Jan. 12, 1897, 3063  
Dec. 1908, 2955  
2558, 3006, 3018, 3019,  
3024  
3258, 3082  
7316, 2754  
8258, 72  
8817, 2777  
8910, 1881  
9102, 2555  
9343, 2956  
10034, 2961  
10937, 1779  
10952, 2763

14095, 2954  
14675, 2954  
17091, 2766  
17949, 1006B  
18904, 3018  
21175, 2997  
21232, 701  
21341, 2068  
21458, 2602  
21606, 2775  
21889, 907  
22013, 2620  
22433, 2760  
23175, 2095  
23957, 96  
24647, 2408  
24897, 2779  
24745, 664

**ENGLISH**

## Applications

## 1896

16277A. 687

## 1911

1148, 671  
1556, 3056  
23036, 2395

## 1913

6022, 3063  
12107, 849  
21378, 923

## 1914

15472, 666  
17077, 666

## 1915

11036, 937  
14529, 1456  
14588, 837  
15158, 813  
17306, 1392

## 1916

86, 1081  
420, 3013  
~~6922, 2675~~  
~~7339, 199~~  
9210, 687  
9347, 670  
0285, 947  
~~0450, 927~~  
~~0866, 426~~  
~~1240, 1444~~

12862, 204  
12914, 995  
15254, 1762  
16616, 2254  
16671, 846  
17127, 1003  
18316, 668  
18326, 933  
18473, 701

## 1917

878, 2992  
2728, 8020  
2742, 670  
3321, 3048  
3415, 920  
3007, 670  
3892, 674  
4906, 990  
6481, 2254  
7500, 3013  
7737, 671  
7984, 674  
8352, 2997  
8972, 670  
9963, 3048  
10595, 668  
10874, 805  
11250, 665  
11536, 294  
11619, 679  
11946, 269  
12342, 2593  
12843, 2992  
13209, 3045  
15113, 927  
15467, 302  
17365, 849  
19139, 677  
20283, 2026

## 1911

117, 668, 986  
634, 3049  
872, 1214  
1053, 675  
1180, 2608  
1182, 2608  
1183, 2608  
1248, 667, 933  
1453, 687  
1713, 676  
1965, 504  
2141, 3049  
2365, 3022  
2396, 702  
2904, 668  
3502, 2992



## English

4503, 2092  
 4703, 677  
 1451, 688  
 1454, 672  
 1455, 672  
 1623, 689  
 1796, 990  
 4957, 3049  
 4958, 3049  
 5397, 675  
 5741, 674  
 5952, 2092  
 5979, 911  
 6063, 798  
 6382, 685  
 6383, 685  
 6778, 2993  
 7022, 2976  
 7111, 3049  
 7177, 3048  
 8414, 901  
 10681, 303  
 11601, 2770  
 11607, 3050  
 11872, 3013  
 11873, 3013  
 12085, 3048  
 12312, 2770  
 12513, 3073  
 13754, 668  
 13880, 687  
 14522, 669  
 14708, 302  
 15163, 2092  
 16017, 3047  
 16684, 675  
 16827, 675  
 17065, 1281  
 17364, 671  
 17601, 1031  
 17871, 1444  
 18041, 2424  
 18373, 3049  
 19380, 230  
 21084, 2634  
 21318, 847  
 2152, 2770  
 4737, 2640

## 1919

1637, 1381  
 1730, 1444  
 3086, 2993  
 4018, 2906  
 4053, 2881  
 4276, 2554  
 4390, 2897  
 4490, 898  
 4600, 898

## INDEX OF PATENTS

5512, 446  
 7323, 898  
 7403, 898  
 7465, 3050  
 7869, 747  
 8689, 2921  
 8776, 1345  
 9537, 2774  
 9751, 3048  
 0176, 2762  
 1077, 3048  
 1182, 2554  
 1183, 2554  
 2369, 3013  
 2915, 3013  
 3356, 2771  
 13660, 1300  
 14688, 3045  
 15033, 3013  
 15191, 3013  
 15201, 667  
 15205, 667  
 15765, 847  
 15774, 2509  
 15775, 2509  
 16073, 3050  
 17002, 2897  
 17078, 3050  
 17082, 2391  
 17278, 301  
 17547, 301  
 17612, 1076  
 17797, 2755  
 17889, 2897  
 18020, 2896  
 18116, 3002  
 18789, 2776  
 18827, 2772  
 18847, 671  
 20974, 898  
 20975, 3045  
 21373, 847  
 21447, 899  
 21474, 3013  
 21648, 2649  
 21647, 2980  
 21662, 3013  
 21690, 849  
 21773, 3013  
 22265, 3049  
 24122, 2992  
 25140, 1780  
 25494, 2584  
 26158, 3047  
 26969, 2992

## 1920

13796, 3048  
 13926, 3048

16075, 2654  
 16209, 1006  
 16210, 1006  
 16458, 2755  
 16731, 1399  
 24313, 1931

## Patents

## 1801 1846

2481, 292  
 3946, 1010  
 3998, 1010  
 4263, 1010  
 5041, 292  
 6096, 1010, 1101, 11  
 7440, 1010  
 7636, 1010  
 7793, 1010  
 7831, 1010  
 8149, 1010  
 8465, 1016  
 8488, 1462  
 9025, 1010  
 9013, 463  
 9166, 463  
 9558, 1010  
 9569, 1010  
 9912, 1010  
 10011, 2585  
 10116, 1010  
 10326, 1010  
 10416, 1010  
 10872, 1010  
 11052, 1010  
 11147, 2600  
 11307, 1010  
 11326, 1010  
 11407, 1579, 2379, 26  
 11425, 1010, 1100

## 1847

11555, 1011  
 11585, 986  
 11657, 1572  
 11773, 1011, 1130  
 11966, 1011  
 11994, 2981

## 1848

12264, 1011, 1104  
 12333, 1011, 1222

## 1849

12406, 1586  
 12541, 1011  
 12881, 1011

**1850**

12082, 1011  
13113, 724  
13206, 215, 224, 2379  
13424, 1011

**1851**

13529, 1011  
13556, 1011  
13713, 2379, 2706  
13714, 1011  
13819, 2585

**1852**

179, 2827  
575, 2827, 2848  
590, 986, 1104, 1302  
633, 2605  
663, 2827, 2866  
13935, 1589, 1694  
13970, 292  
13987, 1011  
14099, 1011  
14039, 1011  
14041, 2605  
14185, 1011

**1853**

57, 1011  
306, 1589, 1694  
731, 1011, 1104  
788, 1011, 1104  
603, 463  
1208, 1011  
1891, 117  
1919, 1011, 1104, 1116  
1222, 1343  
1942, 292  
2079, 1011  
2004, 1011  
2219, 292  
2324, 1011  
2635, 1011  
2646, 2472  
2803, 1011

**1854**

176, 1011  
188, 1011, 1101, 1104  
622, 1011  
717, 1011, 1302  
892, 2800  
982, 1011, 1101, 1104  
988, 838  
1561, 1011  
1638, 2379, 2662, 2695  
2706, 2813, 2827

2848, 2866, 2885  
2119, 1011  
2161, 1011, 1300  
2172, 292  
2468, 292  
2620, 2905  
2632, 1011  
2637, 2573, 2827  
2663, 1011  
2700, 1011, 1300

**1855**

33, 2697  
135, 292  
173, 1590, 2379, 2697  
2980  
183, 1101, 1104  
276, 2603  
283, 1878, 2379, 2627  
309, 2379, 2799, 2827  
2911, 2919  
320, 2379  
400, 1590  
565, 447  
607, 2379, 2568  
745, 2379, 2605, 2706  
749, 1590, 2379  
770, 2379, 2799, 2822  
2827, 2901  
836, 292  
872, 447  
971, 447  
997, 447  
1062, 1011  
1154, 1011  
1205, 2603, 2618  
1377, 447  
1420, 2379, 2603  
1765, 2379, 2605  
1876, 2379, 2600  
1914, 2379, 2799, 2827  
2897, 2900  
1929, 2379, 2600  
1974, 2379, 2706  
2019, 292  
2112, 2379, 2649, 2827  
2918  
2139, 2379, 2799, 2848  
2866, 2900  
2315, 292  
2358, 2379  
2360, 2379, 2383, 2573  
2600, 2661  
2370, 447  
2514, 681  
2636, 2379, 2627  
2655, 1011  
2673, 2535  
2771, 2379, 2603

2804, 2379  
2808, 2379, 2799, 2861  
2919  
2849, 2379, 2600  
2864, 2412

**1856**

101, 2379, 2600  
231, 2379, 2600  
482, 447  
496, 447  
607, 2379, 2605, 2600  
634, 2379  
893, 1076  
896, 2379, 2914  
996, 1219  
1123, 2379, 2383, 2661  
2798, 2827, 2885  
1125, 2383, 2800, 2601  
1159, 2379, 2661, 2799  
2848, 2900  
1171, 2379, 2910  
1244, 2379, 2761  
1150, 698  
1649, 986  
1651, 2379, 2916  
1652, 2379, 2600  
1661, 447  
1724, 2379, 2600  
1748, 447  
1756, 2379  
1862, 2379, 2600  
2029, 2379, 2799, 2827  
2829, 2901  
2072, 2379, 2750, 2799  
2095, 980, 1104  
2183, 1011  
2254, 2379, 2799, 2861  
2919  
2256, 2379, 2573  
2385, 2379, 2610  
2391, 1011  
2533, 447  
2871, 2379, 2799, 2909  
2918  
2982, 1205  
3060, 1011

**1857**

41, 1205  
107, 1219  
238, 447  
404, 2605  
498, 2379, 2600  
500, 2379  
501, 2901  
617, 447  
624, 2379, 2799

**English**

• 639, 2379  
 653, 2379, 2573, 2601  
 2617  
 726, 2379, 2600, 2603  
 909, 1011  
 965, 2379, 2600  
 968, 2590  
 1220, 447  
 1235, 447  
 1244, 1011  
 1511, 2910, 2915  
 1511, 2379, 2827, 2869  
 1843, 2379, 2850  
 1883, 2009, 2379, 2573  
 2600, 2827  
 1884, 2379, 2573, 2605  
 2600, 2827  
 1908, 2379, 2600  
 2057, 1011  
 2230, 1011  
 2282, 1206, 1591, 2379  
 2515, 2379, 2827, 2866  
 2901, 2907  
 2569, 1219  
 2801, 447  
 2882, 2082  
 3001, 447  
 3027, 2379, 2603  
 3066, 2379, 2827, 2863  
 3091, 1081  
 3188, 450  
 4071, 292

**1858**

178, 2379, 2600  
 313, 1030  
 335, 447  
 452, 447  
 468, 2379, 2600  
 639, 1590, 2379, 2573  
 2605, 2600, 2686  
 725, 2827, 2869, 2901  
 768, 419  
 895, 1011  
 1076, 447  
 1090, 2379, 2573  
 1094, 1116  
 1103, 1011  
 1321, 447  
 1321, 447  
 1932, 447  
 1986, 2379, 2600  
 2041, 2379, 2600  
 2242, 729  
 2349, 2379, 2706  
 2749, 2379  
 2849, 2379, 2611, 2706  
 2961, 2379, 2600  
 3066, 2379, 2799

**1859**

49, 2379, 2600  
 344, 2827  
 444, 2383, 2827  
 594, 1011  
 734, 1872, 2379, 2605  
 2661, 2693  
 787, 101, 104  
 945, 1803, 2379, 2573  
 2605, 2690, 2706  
 1045, 847  
 1255, 2379, 2980  
 1278, 2379, 2472  
 1546, 1205  
 1640, 447  
 1651, 2379, 2600  
 1744, 78, 2379  
 1980, 447  
 1997, 292  
 2006, 447  
 2077, 447  
 2110, 1011  
 2256, 447  
 2293, 2379, 2611  
 2295, 2379, 2573  
 2393, 2827, 2919  
 2538, 2600  
 2564, 447  
 2604, 2600  
 2607, 681  
 2750, 2080  
 2789, 2379, 2605  
 2790, 2379, 2739  
 2791, 1591, 2379, 2605  
 2900, 1011

**1860**

148, 447  
 149, 2905  
 611, 447  
 1027, 681  
 1050, 447  
 1181, 447  
 1295, 1591, 2379, 2605  
 2980  
 1416, 681  
 1454, 288, 447, 568  
 2379, 2661  
 1522, 1297  
 1617, 681  
 1647, 1030  
 1721, 2573  
 1985, 1219, 1223  
 2249, 1803, 2379, 2573  
 2605, 2660, 2674  
 2706  
 2384, 2379, 2605  
 2417, 2573

2647, 1081  
 2775, 2379, 2661, 2702  
 2881, 2379  
 2913, 2909  
 3024, 2379, 2799, 2827  
 2897, 2917  
 3038, 447  
 3164, 2741

**1861**

42, 1011  
 358, 447  
 391, 730  
 508, 2379, 2867  
 562, 2926  
 852, 958  
 932, 681, 811  
 940, 447  
 955, 2379, 2750, 2799  
 2827, 2864  
 975, 2384  
 1006, 1206, 1212  
 1074, 2379, 2748, 2799  
 1327, 2839, 2842  
 2847  
 1089, 2379, 2750, 2799  
 2827, 2919  
 1462, 1011  
 1507, 292  
 1819, 702  
 1822, 292  
 1938, 2379, 2910  
 2140, 2379, 2600, 2706, 2707  
 2162, 447  
 2197, 1061  
 2351, 292  
 2377, 2926  
 2456, 447  
 2601, 1598, 2926, 2948  
 2907, 811  
 2601, 2379, 2573, 2605  
 2903, 447  
 2923, 2707  
 2944, 956  
 3080, 2866  
 3138, 447  
 3206, 2926  
 13542, 2378, 2706

**1862**

113, 1061  
 139, 2926  
 158, 2379, 2428, 2472  
 264, 1011  
 320, 1604, 2095, 2379, 2926, 2947  
 432, 2379, 2980

556, 2379, 2610, 2618  
679, 1598, 2379, 2980  
852, 1877, 2379, 2652,  
2923

1084, 1011, 1061, 2926  
1090, 1595, 2021, 2379,  
2926

1232, 2429, 2472  
1352, 1206  
1403, 2379, 2900

1712, 2379, 2827, 2918  
1717, 447

1796, 2926  
1798, 1598, 2926

2072, 1625, 1818, 2379,  
2926

2091, 2638  
2275, 1011, 1061

2462, 1206, 1206  
2545, 986

2550, 811  
2565, 1061

2598, 2379, 2718, 2750,  
2800, 2917

3017, 700  
3284, 447

3314, 447  
3418, 730

**1863**

180, 956  
222, 2379, 2574, 2609

232, 2379, 2611  
365, 2379, 2661

376, 2750  
408, 292

467, 292  
611, 1061, 1222

863, 1206  
881, 1600, 2926

949, 2926  
956, 724

967, 1061  
1057, 2379, 2574, 2611

1062, 2926  
1291, 2379, 2448, 2472

1297, 1595, 1787  
1628, 2926

1732, 946  
1776, 1061, 1297

2203, 1061  
2353, 1600

2350, 2387, 2926  
2555, 2926

2670, 2600  
2720, 1595, 2021, 2379,  
2980

2839, 744

2959, 2379, 2751, 2800,  
2887

3044, 1061  
3410, 2379, 2568

**1864**

292, 2926  
337, 2926

387, 2383  
446, 2379, 2860, 2870,  
2920

503, 2379, 2865  
580, 1061

756, 2379, 2574, 2905  
782, 447

900, 1808, 2926  
1001, 2379, 2603

1060, 2379, 2827, 2905,  
2906

1401, 1011  
1538, 1299

1545, 1011, 1061  
1624, 447

1774, 2379, 2979  
1813, 2926

1957, 447  
2033, 2379, 2400, 2500

2048, 2906  
2100, 1572, 2379, 2982

2143, 2379, 2574, 2693,  
2800, 2861

2190, 2379, 2911  
2347, 2379, 2800, 2827,

2851, 2887  
2373, 2851

2465, 2379, 2827, 2859,  
2860, 2918

2594, 2926  
2607, 1011

2675, 2379, 2383, 2600,  
2661

2759, 1600, 2926  
2953, 2379, 2800, 2904

2998, 1046  
3048, 2379, 2907

3164, 2379, 2562, 2574

**1865**

72, 2379, 2800, 2840,  
2887, 2919

88, 447  
97, 2379

820, 2379  
402, 2926

449, 2379, 2800, 2910  
729, 1061

831, 2868  
915, 2827

1610, 2095,

2379, 2926  
1300, 1595, 2379, 2980

1313, 2379, 2383, 2661  
1319, 447

1385, 1061  
1442, 2585,

1537, 2708  
1552, 2379, 2978

1636, 2926  
1679, 2926

1791, 2379, 2865, 2911  
1833, 681

1939, 2926  
2100, 1011, 1061

2110, 2827, 2909, 2918  
2206, 1617, 1817, 2926

2350, 1061  
2488, 2926

2535, 1061  
2542, 2379, 2611

2720, 1011  
2733, 2379, 2661

2906, 2926  
2954, 2909

3163, 2032, 2379, 2383,  
2661

3190, 2379, 2827, 2850,  
2861

3206, 2926  
3253, 2379

3359, 1617, 2379, 2983

**1866**

97, 2379  
112, 292

121, 1061  
301, 730

595, 2926  
845, 1617, 2926

862, 1011  
953, 1618, 2379, 2926,

2985  
1160, 447

1341, 1617, 2926  
1493, 1011

1564, 2379, 2600, 2661  
1592, 2379, 2661, 2743

1695, 2379  
1746, 2379, 2617

1977, 1011  
1948, 1061

1956, 2926  
2026, 730, 811

2114, 947  
2418, 2379

2593, 1061, 1206  
2695, 2379, 2980

2709, 2379, 2661, 2718  
2739, 2926

**English**

2924, 284, 315, 447  
 3002, 2379, 2574, 2827,  
 2906  
 3091, 1011  
 3117, 1061, 1081  
 3269, 986  
 3293, 1618, 1809, 1878,  
 2030, 2379, 2926  
 3301, 1617, 2379, 2926,  
 2960  
 3325, 2379, 2980  
 3401, 1011, 1061  
 13389, 2908  
 15727, 2901

**1867**

340, 225, 229  
 385, 277  
 568, 1087  
 789, 1075  
 865, 2379, 2661, 2686  
 989, 1618, 2030, 2379  
 1002, 1618, 2379, 2981  
 1040, 1011, 1061  
 1129, 1618, 1754, 2063  
 1210, 1618, 2379, 2981  
 1345, 1606, 2926  
 1408, 2926  
 1695, 2379, 2661  
 1816, 2379, 2662  
 2259, 1309  
 2431, 2926  
 2604, 3082  
 2666, 2379, 2383, 2662  
 2785, 2379, 2574, 2739  
 2801, 681  
 2816, 2379, 2512  
 2837, 2926  
 2923, 1618, 2379, 2080  
 2968, 2379  
 3127, 1618, 2379, 2926,  
 2980  
 3157, 2379, 2577  
 3217, 1299  
 3458, 1619, 2379, 2957  
 3490, 2926  
 3542, 2379, 2590, 2738,  
 2800  
 3652, 2379, 2926, 2971

**1868**

70, 2926  
 82, 447  
 83, 447  
 167, 292  
 219, 78  
 270, 1061, 1072, 1206  
 480, 2993

535, 2379  
 536, 2379, 2663, 2739  
 596, 1085  
 741, 2379, 2611, 2661  
 1050, 292  
 1124, 2379  
 1206, 2379, 2800, 2864,  
 2868  
 1210, 1809, 2379, 2926,  
 2977  
 1222, 2379, 2611, 2661  
 1366, 2379, 2573, 2661  
 1375, 2926  
 1380, 78  
 1457, 0161, 1099  
 1614, 2379, 2383, 2661  
 1717, 78, 2379  
 1736, 2926  
 1909, 1087  
 2201, 2379, 2864, 2906  
 2489, 2379, 2590, 2600  
 2491, 1267  
 2542, 1809, 2379, 2926,  
 2970  
 2600, 1061, 1076, 1206  
 2793, 292  
 2865, 2926  
 2941, 447  
 3036, 1011, 1206  
 3098, 1289  
 3101, 1061  
 3115, 1606, 1809, 2379,  
 2926, 2976  
 3171, 447  
 3404, 1206  
 3408, 1618, 2066, 2255,  
 2379, 2926, 2956  
 3471, 1011  
 3651, 2379, 2383, 2724  
 3984, 2379, 2383, 2662

**1869**

23, 2587  
 42, 1011, 1206  
 265, 681  
 336, 2864  
 442, 2926  
 469, 1061, 1087  
 565, 1075  
 689, 2379, 2603  
 756, 1063  
 881, 1011, 1206  
 886, 2926  
 933, 447  
 1193, 2926  
 1540, 1300  
 1575, 1061  
 1609, 2379, 2383, ...  
 1800, 2926

1890, 941  
 1897, 447  
 2022, 2379, 2750, 2800,  
 2915  
 2077, 949, 1206, 1286  
 2137, 681  
 2166, 2926  
 2249, 2379  
 2500, 2926  
 2510, 2379, 2383, 2724  
 2747, 2926  
 2750, 1061  
 2944, 1619  
 3102, 2379, 2383, 2662  
 3494, 1206, 1237  
 3700, 1088  
 3752, 681  
 3756, 1061, 1206

**1870**

97, 1313  
 180, 2379, 2662  
 445, 956  
 510, 1061  
 748, 292  
 787, 2379, 2662  
 793, 1294  
 941, 2379, 2800, 2906,  
 2910  
 959, 2379  
 982, 2510  
 1017, 1875, 2379, 2605,  
 2662  
 1123, 2473  
 1394, 1306  
 1447, 1072  
 1626, 2379, 2662  
 1770, 1087  
 1801, 2473  
 2065, 1206  
 2101, 2379, 2664, 2675,  
 2677  
 2283, 1011  
 2293, 1206, 1239  
 2641, 1122  
 2649, 2379, 2662, 2701,  
 2706  
 2668, 1088  
 2745, 2451, 2473  
 2823, 1061, 1075  
 2866, 1061  
 2867, 1620, 2379, 2926,  
 2983, 2984  
 2892, 2379, 2739  
 2958, 948  
 3139, 293  
 3148, 293  
 3373, 2379, 2982  
 3392, 292

3617, 2379, 2564

**1871**

79, 1030, 1061  
176, 1206  
279, 293  
311, 2926  
340, 2910  
364, 1011  
491, 730, 895  
540, 2379  
753, 1061, 1100, 1104,  
1122  
972, 1011, 1061  
995, 730  
1025, 2379, 2738  
1035, 2379  
1077, 1206  
1181, 895, 937  
1288, 2379, 2592, 2611  
1243, 1360  
1326, 1809, 2926  
1422, 293  
1682, 1100, 104, 1344  
1738, 2600  
1871, 293  
1879, 2379, 2600  
1908, 1113  
1920, 1061, 1299  
1923, 1061, 1075  
1928, 1061, 1075  
1939, 2926  
2070, 2379, 2611  
2200, 1299  
2231, 895  
2283, 2926  
2384, 1061  
2430, 1621, 2084, 2379,  
2926  
2454, 2926  
2642, 2926  
2909, 2850  
2972, 2379, 2574, 2611  
3176, 1212, 1237  
3143, 1292  
3178, 2379, 2574, 2739  
3183, 730  
3376, 2379, 2604  
3448, 721

**1872**

37, 681  
145, 1061, 1092  
257, 293  
656, 2926  
752, 2926  
794, 1061, 1081  
970, 2379, 2649, 2654  
1376, 724

1443, 2379, 2719, 2720  
1509, 2926  
1540, 1011, 1061, 1301  
1642, 2918  
1851, 293  
1885, 2926  
2102, 447  
2147, 293  
2545, 958  
2625, 2379, 2577, 2617  
2693, 1621, 2032, 2053,  
2076, 2094, 2379,  
2926  
2766, 2926  
2772, 1618, 2379  
2848, 2379, 2910  
2952, 1075  
3101, 2379, 2664, 2675,  
2677  
3103, 731, 2379  
3447, 2379, 2611  
3464, 1061, 1087  
3956, 447

**1873**

109, 1219  
360, 2926  
445, 1621, 2009, 2379,  
2978  
695, 293, 1011  
863, 293  
926, 2926  
1064, 2926  
1170, 1623, 1624, 1874,  
2379  
1348, 1623  
1556, 729  
1570, 2926  
1610, 2379, 2611  
1630, 730  
1830, 1621, 1785, 2162,  
2379, 2926, 2946  
2729, 1014  
2802, 2379, 2574  
2984, 2926  
3189, 1206, 1234  
3194, 2926  
3273, 2926  
3717, 2379  
3731, 2926  
3760, 1061, 1087  
4019, 681  
4148, 2926  
4161, 1063  
4195, 2379, 2684, 2866,  
2904

**1874**

138, 955

185, 1087  
265, 941  
425, 1299  
667, 1088  
961, 1623, 2926  
1063, 77, 2379  
1074, 2379  
1275, 1623, 2379, 2697,  
2980  
1566, 2926  
1583, 1006  
1811, 811  
1841, 704  
2062, 1621, 1875, 2023,  
2379, 2926, 2946  
2111, 959  
2115, 1099  
2181, 701, 1302  
2262, 568, 2379, 2450  
2514, 928  
2641, 2926  
2708, 1061  
2807, 1219, 1221  
2884, 1061  
2893, 1087  
2913, 958  
2956, 293  
3087, 1061, 1076  
3417, 1206  
3509, 941  
3612, 1421, 1621, 2032,  
2379, 2926  
3717, 2379, 2982  
3781, 1623, 2379, 2926,  
2945  
3832, 2707  
3934, 2926  
4153, 1061  
4342, 1206  
4373, 1309  
4386, 1011

**1875**

252, 958  
291, 2926  
381, 391  
681, 1061  
718, 2379  
726, 2379, 2452, 2474  
827, 78, 2379  
1025, 2379  
1276, 2379  
1397, 2926  
1638, 1131  
1730, 2662  
1739, 1624, 2379, 2923,  
2962, 2721  
1802, 442

**English**

825, 2379, 2917,  
2007, 447  
2044, 1624, 2025, 2379  
2059, 2379, 2692  
2275, 2379, 2604  
2307, 447  
2459, 1624, 1894, 1854,  
2379, 2926, 2947,  
2973, 2975  
2460, 1061  
2481, 1061, 1002  
2513, 2379, 2667, 2739  
2678, 1086, 1300  
2690, 1206, 1239  
2727, 1061, 1092  
2873, 1206, 1229  
3088, 1619, 2023, 2256,  
2379, 2926  
3153, 948  
3278, 1061  
3766, 2379, 2610, 2618  
4037, 2993  
4155, 2926  
4179, 1616, 2926  
4268, 1620, 2984  
4348, 1229  
4385, 1063  
4392, 960  
4931, 1003

**1876**

15, 1061  
215, 2379, 2474  
405, 955  
1103, 1061  
1398, 957  
1476, 2610  
1750, 2379, 2474, 2600  
1773, 1061, 1087  
1782, 1061  
2114, 2379, 2610, 2618  
2285, 1061, 1130  
2370, 447  
2500, 2677, 2678  
2515, 2379, 2384, 2487,  
2692  
2596, 2379  
2694, 447  
2737, 1061  
2742, 1621, 1874, 1911,  
2379, 2926  
2793, 2876  
2950, 1061  
3056, 1824, 2926  
3094, 1061  
3150, 2985  
3236, 447  
3243, 2591  
3295, 2379

3298, 2906  
3517, 447  
3593, 1061  
3605, 2379, 2750  
3834, 958  
4048, 1061  
4075, 2926  
4568, 2926  
4624, 1061, 1087  
4751, 1087  
4806, 1624, 2017, 2379,  
2926, 2945  
4949, 2926  
5000, 2926

**1877**

142, 2379, 2864  
174, 1618, 2379, 2948  
198, 1621, 1911, 2379,  
2926, 2982  
444, 1030  
445, 1030  
555, 2379  
697, 1030  
820, 1061  
954, 2379, 2588, 2720  
1008, 104, 2379  
1367, 2919  
1451, 1626, 2803  
1492, 447  
1601, 2379  
1618, 1206, 1233  
1877, 2379  
1958, 947  
1968, 477  
2247, 1087  
2288, 958  
2312, 2379, 2662, 2669,  
2716  
2432, 2993  
2468, 2379, 2945, 2963  
2768, 1618, 1754, 1886,  
2379, 2963  
2832, 1625, 1818, 1911,  
2379, 2719, 2926,  
2948  
2842, 1061  
3082, 1061  
3222, 2379, 2864  
3226, 447  
3229, 1344  
3289, 2926  
3294, 1811, 2379, 2926  
3613, 2379, 2742  
3685, 77, 2379  
3703, 2379, 2749, 2908  
3715, 2379, 2713  
3760, 2379, 2981  
3805, 1313

3986, 2379, 2738  
4118, 1019  
4359, 681  
4447, 2379, 2610  
4501, 447  
4630, 101, 104  
4732, 2926  
4771, 2063, 2379, 2780

**1878**

Dec. 24, 1071

36, 2379, 2600  
110, 2993  
174, 71  
185, 77, 2379  
186, 1101  
215, 1061, 1087  
256, 1116  
304, 1309, 2379  
356, 1061, 1087  
500, 1025  
643, 702  
759, 2379, 2574  
878, 2379, 2664, 2675,  
2716  
1084, 1075, 1206, 1231  
1131, 1025, 1061, 1075  
1201, 1132, 1382  
1281, 1061, 1075  
1285, 2379, 2600  
1523, 1113  
1563, 1810, 2926  
1644, 2736  
1800, 958  
1828, 1101  
2002, 1625  
2018, 2600  
2089, 2379  
2217, 2379, 2512  
2376, 1299  
2392, 957  
2473, 2379, 2861  
2484, 2379, 2593  
2517, 2379, 2510, 2926  
2519, 240, 606, 1616,  
2379  
2571, 678  
2660, 2379  
2801, 2379  
2811, 1305  
2840, 1071  
2880, 1061  
2912, 2379, 2911, 2917  
2921, 2902  
3119, 1629, 1803, 1872,  
2928  
3182, 1206, 1309  
3196, 2379, 2750, 2861,

2919  
3286, 2379, 2718  
3300, 2379, 2739  
3701, 1071  
3708, 2379, 2720  
3842, 2379, 2574  
3954, 2926  
4100, 947  
4310, 1075  
4544, 681  
4549, 1061, 1075  
4711, 1872, 1893, 1900,  
2379, 2923  
4755, 1061, 1075  
4804, 949  
4888, 2379, 2512  
4926, 2379, 2980, 2981  
5057, 730, 1423, 2037  
2379, 2674, 2676  
5912, 2379, 2678, 2738  
5159, 1061, 1084  
5239, 1288  
5240, 2379, 2720  
5255, 2379, 2693

1879

56, 1900  
127, 2379, 2669, 2767  
156, 2379, 2739  
189, 1061, 1086, 1091  
226, 2379, 2959, 2965  
705, 1239  
713, 1818, 1031  
718, 2379, 2583, 2611,  
2790  
748, 2379, 2862, 2919  
823, 447  
895, 1061, 1301  
919, 1131  
959, 2379, 2592  
983, 1062, 1076  
1090, 2379, 2926, 2958  
1422, 2379, 2678, 2685,  
2745, 2747  
1446, 681  
1481, 730  
1552, 2379, 2600  
1592, 681  
1661, 453  
1703, 1301  
1855, 1075  
1866, 2379, 2384, 2618  
2661  
1866, 2379, 2384, 2577  
1869, 1626  
2006, 1067  
2266, 2926  
2399, 2379, 2926, 2959  
2536, 1629, 2379, 2926

2539, 681  
2771, 2379, 2739, 2740  
2839, 950, 1351, 1356  
3119, 2379  
3170, 2379, 2709, 2711  
3196, 1062  
3603, 2379, 2611  
3774, 1062, 1063, 1206  
3947, 2926  
4202, 2379, 2384  
4304, 1062, 1292  
4394, 1626, 2379, 2926,  
2946  
4771, 1626, 2803  
5013, 2926  
5117, 2379, 2677, 2678  
5223, 2379, 2750, 2800,  
2906

1880

22, 957  
163, 1867, 2379, 2926,  
2955, 2968  
263, 1130  
340, 447  
447, 2926  
800, 2379  
810, 2926  
847, 2379, 2838, 2842,  
2844, 2869  
884, 447  
937, 447  
1004, 681  
1077, 2379, 2601  
1112, 2379, 2751, 2919  
1284, 2379, 2493  
1287, 2926  
1294, 2379, 2906  
1416, 681  
1456, 1062  
1483, 956  
1569, 2379, 2864, 2918  
2083, 446  
2149, 1785, 2536, 2974  
2161, 2843  
2162, 2379, 2838, 2844,  
2869, 2895  
2178, 2926  
2239, 2926  
2242, 2379, 2926, 2981,  
2984  
2326, 2379, 2474, 2591  
2326, 2379, 2681, 2719  
2485, 1631, 1854  
2631, 447  
2775, 2926  
2784, 1062  
2966, 225  
3130, 2905, 2907

3196, 1072  
3352, 2379, 2413, 2474  
3366, 456  
3400, 2379, 2611, 2618  
3456, 957  
3474, 1629, 2379, 2980  
3540, 1286  
3753, 2379, 2751  
3846, 2926  
4108, 2771  
4200, 1629, 2379, 2926,  
2960  
4230, 1621, 1631, 2379,  
2926, 2946  
4496, 1075  
4522, 1206, 1286  
4643, 2926  
4817, 1069  
4874, 2379, 2691  
4933, 2379, 2594  
4943, 561, 2379, 2926,  
2958  
5341, 2379, 2601  
5374, 1300  
5457, 1075  
5478, 681  
5498, 956  
12123, 2738  
15354, 428  
16221, 428

1881

386, 456  
431, 2379, 2677  
800, 1632, 1810, 2162,  
2379, 2926, 2959,  
2970  
801, 1632, 1810, 2162,  
2379, 2926, 2959,  
2970  
814, 1851, 2379, 2801,  
2803  
896, 2379, 2512  
983, 105  
2379, 2661  
1215, 2994  
1341, 2379, 2958, 2985  
1476, 2379, 2718, 2719  
1477, 2379, 2718, 2719  
1480, 2379, 2677, 2719  
1538, 2848, 2859, 2863  
1559, 2379, 2751, 2798,  
2887  
1728, 2379, 2677, 2678  
2738  
1811, 1874, 1894, 2379,  
2639  
1893, 1062, 1086  
1897, 681



**English**

91957, 1206, 1294  
 2057, 2379, 2716  
 2080, 1062, 1299, 2973  
 2226, 1853, 2379, 2926  
 2302, 1785, 2536, 2926  
 2483, 2379  
 2488, 2926  
 2575, 1062  
 2673, 724  
 2816, 730  
 2985, 2379, 2578, 2738  
 3072, 1780, 2379, 2578  
 3211, 1081  
 3314, 447  
 3376, 2379, 2675, 2719  
 3443, 1062, 1086  
 3485, 2379, 2669  
 3560, 1062  
 3584, 1306  
 3628, 2379, 2750, 2917  
 3728, 681  
 3762, 2910  
 3864, 2039, 2379, 2664  
 3923, 2926  
 4218, 1062, 1075  
 4397, 2994  
 4418, 1072  
 4441, 947  
 4544, 702, 721, 2926,  
 2994  
 4766, 2993  
 4857, 1062  
 4888, 1206, 1207  
 4896, 2379, 2751, 2838,  
 2869  
 4985, 2713  
 5154, 2688  
 5416, 1086, 1087  
 5574, 1087  
 5522, 2379, 2881, 2883  
 5584, 2926  
 5596, 2926  
 5617, 681  
 5621, 1295  
 5713, 225

**1882**

• 24, 1413, 2379  
 120, 1062, 1082  
 226, 2379, 2718, 2720  
 • 236, 447  
 • 367, 1350  
 433, 927  
 466, 2379  
 567, 2379, 2926, 2977  
 619, 1632, 1897, 2379,  
 2926, 2944, 2971  
 • 775, 2379, 2752, 2920  
 955, 1062, 1087

981, 2926  
 995, 456  
 1014, 1062  
 1153, 2379  
 1167, 1087  
 1433, 2379, 2611, 2661  
 1445, 1633  
 1461, 2379, 2926, 2981  
 1494, 1062, 1071  
 1591, 447  
 1665, 1062, 1087, 2993  
 1668, 311  
 1752, 1206, 1229  
 1816, 225, 234, 2379  
 1817, 2500  
 1849, 2379, 2919  
 1913, 1062, 1075  
 1969, 2926  
 2014, 447  
 2073, 2379, 2667, 2676,  
 2742  
 2193, 813, 1000  
 2407, 2926  
 2501, 958  
 2512, 2477  
 2517, 2379, 2453  
 2730, 1015  
 2823, 1300  
 2836, 1810, 2926  
 2895, 2926  
 2930, 1087  
 2943, 1780, 2379, 2575  
 3055, 2926  
 3072, 1788, 2379, 3072  
 3176, 2379  
 3186, 1030, 1062  
 3539, 2771  
 3607, 1087  
 3608, 1015, 1062  
 3714, 1062, 1092  
 3749, 2379, 2602  
 3750, 2379, 2678  
 3889, 2379  
 3987, 2403  
 4108, 1270  
 4209, 456  
 4224, 447  
 4277, 447  
 4458, 2379, 2594, 2701  
 4709, 1351  
 4846, 2926  
 4917, 1634, 2030, 2379,  
 2946, 2982  
 5025, 1076  
 5030, 1306  
 5323, 2957  
 5365, 284  
 5366, 284  
 5367, 284

5368, 284  
 5412, 1062, 1087  
 5532, 290  
 5604, 947  
 5607, 1310  
 5914, 59  
 5986, 2926  
 6015, 2926  
 6064, 1087  
 6152, 2379, 2619  
 6176, 477  
 14009, 2379, 2683  
 14413, 2379  
 21957, 1780

**1883**

33, 2379, 2575, 2719  
 96, 1382  
 254, 2926  
 441, 2379, 2718, 2764  
 466, 2379, 2578, 2580,  
 2611  
 595, 445  
 • 718, 481  
 • 737, 70, 92  
 941, 958  
 983, 2379  
 1349, 299, 1062, 1075  
 1427, 1086  
 1548, 274, 287, 305  
 1608, 2379, 2888, 2902  
 1651, 1391  
 1765, 2379  
 1767, 2030, 2379, 2926,  
 2946  
 1883, 1634, 1855, 2926  
 1893, 2379  
 1960, 2379, 2861  
 2035, 1360  
 2139, 2926  
 2263, 681  
 2321, 955  
 2326, 2379, 2506, 2507  
 2428, 2926  
 2481, 2025, 2379, 2719  
 2517, 2379  
 2621, 1062, 1092  
 2703, 456  
 2754, 1076  
 2843, 1122  
 2869, 597  
 2913, 1071  
 2984, 2379  
 3089, 681  
 3183, 225, 234, 2379  
 3190, 1313  
 3230, 3350  
 3240, 295  
 3257, 299

3362, 2379, 2909  
 3599, 295  
 3615, 2379, 2605, 2619  
 3662, 2379  
 3725, 1062, 1299  
 3866, 1810, 2164, 2379,  
 2943  
 3889, 2825  
 3922, 987  
 3930, 2379, 2718  
 4000, 1072  
 4043, 2926  
 4061, 730  
 4128, 2379, 2740  
 4145, 2911  
 4146, 447, 466  
 4154, 2379  
 4256, 455  
 4337, 1070  
 4366, 1062, 1300  
 4589, 2379, 2690, 2747  
 4765, 2379, 2611  
 4853, 949  
 4917, 2379  
 5070, 1062  
 5100, 298  
 5205, 947  
 5354, 2379, 2610  
 5624, 2926  
 5625, 2926  
 5722, 2379, 2980  
 5845, 2379, 2749  
 5894, 956  
 5898, 2379, 2977  
 5958, 1062  
 5959, 1062  
 5960, 1062  
 5974, 2575  
 5978, 2379, 2594, 2623,  
 2646  
 6074, 2379  
 28096, 225, 233  
 28099, 2379  
 •  
**1884**  
 503, 2379, 2722, 2756  
 603, 1062, 1075  
 1024, 2379, 2926, 2957  
 1251, 2746  
 1486, 1278  
 1655, 311  
 1857, 2674  
 1895, 2379  
 1908, 2379, 2677, 2911  
 1930, 1061  
 2037, 2379, 2601, 2619  
 2073, 1887, 2379, 2700  
 2143, 2926  
 2312, 2909

2316, 266  
 2841, 2379, 2593  
 3029, 2379, 2594  
 3086, 1206, 1224  
 3141, 2379, 2604  
 3171, 2379, 2602  
 3780, 295  
 3930, 2379  
 3936, 2379, 2715  
 3981, 2926  
 4917, 2379  
 5068, 2379, 2743  
 5191, 2379  
 5260, 452  
 5382, 1785, 1824, 2379,  
 2926, 2946  
 5433, 2379, 2575  
 5595, 2908  
 5838, 225  
 5930, 1062, 1092, 1297  
 6051, 2379, 2580, 2615  
 6215, 1343, 1345  
 6371, 1426  
 6376, 299  
 6514, 2926  
 6515, 567, 2926  
 6548, 2926  
 6647, 2700  
 6982, 1062, 1063  
 7511, 298  
 7830, 2379, 2610  
 7977, 1062  
 7988, 1075  
 8153, 2379  
 8042, 225, 233, 504,  
 2379  
 8803, 1360  
 9096, 2926  
 9205, 2676  
 9317, 1206, 1217  
 9362, 1366  
 9461, 2379, 2751  
 9509, 301, 312  
 9761, 1016, 1024, 1062  
 9774, 301  
 10359, 463  
 10558, 2379, 2907  
 10765, 2379, 2719  
 10860, 1131  
 10864, 104, 660, 2379  
 10871, 1265  
 10980, 2379, 2384, 2926,  
 2948, 2972  
 11557, 295  
 11651, 300  
 11655, 1062  
 11808, 1811, 2379, 2920,  
 2975  
 11816, 277

11866, 1062, 1344  
 12292, 730, 1819, 2379,  
 2926  
 12326, 430  
 12346, 299  
 12566, 311  
 12992, 2712  
 13045, 1062  
 13142, 2713  
 13475, 2926  
 13476, 2926  
 13522, 1810, 2379, 2926,  
 2943  
 14140, 2926  
 14173, 984, 1442  
 14240, 2763  
 14271, 470  
 14361, 2926  
 14379, 2926  
 14587, 2379, 2601  
 14735, 304, 699  
 14859, 303  
 14914, 2926  
 14933, 2699  
 14998, 304  
 15121, 1788, 2011, 2379,  
 2674, 2719  
 15188, 299  
 15217, 2379, 2766  
 15393, 1062  
 15546, 2926  
 15647, 2926  
 16224, 2379, 2619  
 16314, 2926  
 16805, 101, 2379, 2594  
 17045, 2379, 2719  
 17106, 681, 1062  
 •  
**1885**  
 157, 681  
 368, 2926  
 491, 2379, 2491, 2780  
 552, 2926  
 553, 2379, 2714  
 1207, 2379, 2794  
 1265, 2379  
 1503, 2379, 2575, 2645  
 1958, 2379  
 2134, 2379, 2705, 2709  
 2189, 2379, 2926, 2945,  
 2977  
 2158, 2379, 2602  
 2208, 451, 453  
 2735, 2379, 2602  
 2901, 1810  
 3049, 1062  
 3101, 447  
 3761, 1062  
 3888, 2379, 2574, 2701

*English*

- 4349, 2370  
 4569, 299  
 4668, 2379, 2580  
 4669, 2379, 2487  
 4948, 456  
 4954, 456  
 4956, 456  
 4957, 453  
 5045, 2699  
 5054, 2379  
 5055, 1875  
 5202, 2379, 2574, 2700  
 5252, 2926  
 5349, 2379, 2699  
 5626, 299  
 5657, 2379  
 6045, 2379, 2621  
 6127, 1366  
 6139, 456  
 6166, 451  
 6404, 1015, 1092  
 6405, 1062, 1092  
 6561, 2379, 2981  
 6626, 1062  
 6840, 300  
 6926, 2379, 2926, 2946  
 7187, 568, 2379  
 7223, 2379, 2619  
 7285, 1072, 1074  
 7355, 1061, 1062  
 7382, 2379, 2601  
 7495, 296  
 7640, 2379, 2943, 2963  
 7651, 2379, 2718, 2719  
 7657, 681  
 7676, 2379, 2601, 2619  
 7788, 470  
 8000, 477, 479, 947  
 8012, 2379, 2676, 2680,  
 2730  
 8073, 302  
 8623, 2379, 2385  
 8626, 2379, 2603  
 8627, 2379, 2699  
 8693, 2379, 2978  
 8786, 2379, 2600  
 8787, 2379, 2600  
 8838, 1062  
 8912, 1062, 1087  
 8917, 2629  
 8951, 2379, 2926, 2943,  
 2945  
 8963, 2379, 2602  
 9319, 104, 660, 2379,  
 2603  
 9614, 1306  
 10011, 1303  
 10355, 1217  
 10625, 2926
- 11178, 1062  
 11428, 2379, 2568  
 11432, 2926  
 11454, 2379, 2699  
 11474, 2379, 2741  
 11492, 1273  
 1880, 2379, 2604, 2619  
 2023, 336, 337, 2379  
 2261, 291, 1062  
 12778, 1875, 2379, 2926  
 12837, 2379, 2926, 2948,  
 2972  
 12838, 2972  
 13108, 1031  
 13581, 2926  
 13582, 2926  
 13609, 2746  
 13690, 2926  
 13950, 1059, 1062, 1090  
 14052, 2926  
 14364, 1062, 1303  
 14412, 2926  
 14780, 800, 1062  
 15001, 1206, 1239  
 15089, 2379, 2926, 2965,  
 2979, 2981  
 15129, 2379, 2926, 2946,  
 2975  
 15140, 225, 233, 2379,  
 2649  
 15304, 2708  
 15475, 320, 2379  
 15526, 2379  
 15528, 1853, 2926, 2955,  
 2965  
 15694, 2379, 2926, 2980  
 15804, 2379, 2704  
 15872, 2379, 2602, 2729  
 15988, 1062, 1075, 1292  
 16805, 2701
- 1886**
- 172, 2701  
 180, 1070, 1075  
 508, 456  
 738, 2926  
 872, 1062  
 1722, 2379, 2724  
 1741, 2379  
 1795, 299  
 1820, 420, 470  
 1861, 1278  
 1868, 2926  
 1955, 2926  
 2207, 1383  
 2210, 2379, 2621  
 2211, 1901, 2379, 232  
 2924, 277  
 3469, 681
- 3472, 303  
 3578, 2124, 2926  
 3593, 2926  
 3645, 2379, 2619  
 3665, 2379, 2601  
 4218, 2379, 2619  
 4349, 320, 1810, 237  
 4735, 2379  
 4737, 2379, 2564  
 4758, 466  
 5016, 812, 1062, 130  
 5330, 2379, 2926  
 5331, 2926  
 5413, 2379, 2724  
 5508, 2379, 2697, 298  
 5681, 1062, 1070, 107  
 5793, 2379, 2750, 291  
 6167, 2379, 2595, 264  
 6258, 2926  
 6370, 1062  
 6604, 1870, 2379, 292  
 7129, 1031  
 7355, 1062, 1301  
 7361, 1632, 1301  
 7903, 2379  
 7911, 2379, 2980  
 7943, 2707  
 8442, 2025, 2379, 2610  
 2675, 2719  
 9166, 2926  
 9431, 451  
 9604, 2677  
 9874, 2379, 2681, 2692,  
 2745  
 10000, 1062  
 10022, 955  
 10037, 1217  
 10659, 2379, 2575, 2888  
 10798, 1206, 1233  
 10960, 2379, 2563  
 11101, 2379, 2699  
 11140, 2926  
 11808, 2379  
 12070, 1075, 1206, 1212  
 12532, 1877, 2379, 2926  
 12838, 2379  
 13011, 1416, 2379  
 13286, 279, 307  
 13380, 2379, 2745  
 13386, 2747  
 13580, 2379, 2859, 2860  
 13928, 1062  
 14247, 1217, 1222, 1303  
 14381, 2379, 2601  
 14841, 730, 1206, 1224  
 14623, 2926  
 14711, 1060, 1062, 1085  
 14803, 2379, 2926, 2945  
 14875, 1062

14931, 2712  
15165, 681  
15468, 1062  
15555, 2379, 2616  
15727, 2379, 2888  
15896, 466  
15993, 2379, 2385, 2982  
16113, 303  
16476, 2379, 2746, 2911  
16595, 2926  
16656, 2926  
16765, 299  
16780, 299  
16827, 456

1887

62, 702  
383, 2379, 2575, 2718,  
2719  
405, 2379, 2751  
448, 1856, 2379, 2926,  
2974  
653, 2692  
783, 1810, 2926  
986, 409  
1443, 657, 2379, 2649  
1808, 299  
1870, 2379  
1998, 1355  
2106, 2379, 2413, 2475  
2123, 2379, 2619  
2138, 456  
2318, 2379, 2926, 2956  
2628, 2379, 2978  
2679, 2926  
2694, 2379, 2617, 2647  
2695, 2379, 2647  
2770, 2379, 2746  
3027, 2379, 2604  
3304, 447  
3530, 2379, 2898, 2917  
3704, 1062  
3880, 2379, 2588  
4291, 677, 812  
4430, 1382  
4713, 2926  
4833, 2379, 2619  
4915, 2379, 2861, 2865  
4953, 294  
4954, 2580  
5060, 2379, 2848, 2850  
5152, 2379, 2475, 2611  
5270, 447  
5459, 456  
5460, 456  
5688, 2580, 2379  
5791, 2379, 2580  
5899, 2926  
6022, 1811, 2379, 2501,

• 2920, 2945, 2956  
6285, 447  
6389, 2379  
6547, 2575  
6870, 2379, 2580  
6897, 297  
6909, 1013  
7376, 2380, 2580  
7377, 2380, 2580  
7608, 2380, 2926, 2965  
7739, 2380, 2703, 2707,  
2710  
8253, 1635, 2380, 2580  
8387, 2380, 2414, 2477  
8441, 1062  
8442, 2380  
8817, 276, 278  
8862, 299  
9122, 730  
9188, 1107, 1161  
9209, 2926  
9227, 1300  
9543, 1206  
9659, 2380, 2609  
9910, 2380, 2694  
10127, 1062  
10153, 1062, 1075  
10655, 2926  
10667, 2926  
10818, 1062, 1292  
10821, 2926  
10957, 1062  
10281, 2380, 2580  
11610, 303  
11658, 1857, 2926  
12111, 2380, 2575, 2982  
12424, 2926  
12521, 2380, 2888  
12534, 2380  
12700, 1119  
12743, 2380, 2926, 2955,  
2981  
12762, 292  
12903, 304  
13084, 2380, 2730  
13336, 2993  
143454, 1062  
15532, 2926  
15771, 1635, 2580, 2992  
15772, 2380, 2580  
15773, 2380  
16018, 2868  
16116, 2926  
16155, 2380, 2604  
16330, 1635, 1782, 2660  
16320, 2380  
16783, 1804, 2380, 2926  
16919, 2926  
16920, 2926

16987, 681  
17050, 1062  
17095, 949, 4313  
17167, 2030, 2380, 2926,  
2956, 2980  
17260, 391  
17506, 2380, 2926, 2981  
17612, 1350

1888

259, 2921  
370, 2926  
405, 2380, 2888  
487, 1636, 2380, 2385  
667, 2380  
856, 2920  
1082, 751, 838  
1110, 2380, 2710  
1393, 1062, 1075  
1395, 2380, 2685, 2745  
1409, 1824, 2380, 2926,  
2946  
1470, 1616, 2380, 2940,  
2959  
1471, 1825, 2380, 2926,  
2940, 2950, 2969  
1591, 1790, 2380, 2926,  
2960  
1751, 2380, 2749, 2906  
1836, 2380  
1844, 681  
2040, 300  
2122, 2380, 2744  
2426, 1062  
2495, 1013  
2543, 2380, 2601  
2902, 958  
3008, 2380, 2591  
3117, 1212  
3166, 1062, 1101, 1113  
3321, 2380, 2744, 2747  
3354, 2380, 2601  
3669, 1122  
3759, 2926  
3880, 681  
3967, 681  
4310, 1636, 2380, 2936,  
2943, 2948, 2962  
4537, 2888, 2908  
4686, 2380, 2604, 2619  
4648, 1617, 1062  
5055, 2380, 2685, 2841,  
2917  
5212, 1062  
5270, 1636, 1732, 1890,  
2380, 2621, 2640  
5577, 2380, 2601  
5949, 2926  
6418, 2380, 2742

## English

6400, 2380  
 6560, 1825, 1853, 2380,  
 2926  
 6778, 456, 463  
 6860, 2380, 2413  
 6875, 2380, 2945, 2977  
 7020, 2380, 2691  
 7044, 2380, 2748, 2843  
 7061, 956  
 7497, 2926  
 8221, 2380, 2604  
 8840, 294  
 8081, 293  
 9164, 2926  
 9320, 478  
 9604, 2380, 2679  
 9665, 2380, 2761  
 9799, 2380, 2551, 2926,  
 2964  
 9835, 2403  
 9835, 2403  
 10107, 77, 2380  
 10301, 2380, 2700  
 10657, 948  
 10722, 2926  
 11150, 295  
 11398, 2380, 2563  
 11484, 299  
 11548, 2926  
 11579, 2380  
 11665, 2380  
 11731, 934  
 11751, 2926  
 11848, 292  
 12502, 296  
 13308, 2926, 2944  
 13360, 2926  
 13429, 2380, 2591, 2702  
 13656, 328, 1637, 1804,  
 1811, 1875, 2380,  
 2926  
 13780, 2926  
 14027, 2926  
 14171, 2380, 2575, 2867,  
 2919  
 14235, 2380, 2604, 2619  
 14859, 947  
 15052, 2380, 2709  
 15063, 1062, 1301  
 15176, 681  
 15189, 2380, 2718  
 15676, 1062  
 15956, 302  
 15980, 1062  
 16035, 2380, 2403, 2591  
 16213, 2251, 2380, 2926,  
 2943  
 16465, 2380, 2706  
 16785, 2749, 2865

16997, 2926  
 17094, 1819, 2380  
 17212, 2380, 2385, 2926,  
 2946  
 17227, 299  
 17456, 1785, 2380, 2552,  
 2926, 2985  
 17631, 2926  
 17691, 2380, 2707, 2729,  
 2745  
 17692, 2008, 2672, 2675  
 17972, 2477  
 18241, 2926, 2961, 2962  
 18362, 751, 1637, 1790,  
 2380, 2926, 2965  
 18521, 2440  
 18663, 2556, 2926, 2949

## 1889

246, 2380, 2722  
 448, 2380  
 851, 2380, 2575, 2741  
 1115, 1785, 2380, 2926,  
 2977  
 1358, 77  
 1433, 296  
 1445, 2380, 2790, 2791  
 1471, 2380  
 1809, 476  
 1834, 301  
 1988, 2380, 2926, 2959,  
 2979, 2980  
 2078, 2926, 2980  
 2350, 956  
 2569, 2903  
 2570, 1901, 2380, 2623,  
 2626, 2636  
 2571, 2380, 2623, 2626,  
 2636  
 2661, 2380, 2601  
 3279, 2905  
 3369, 2629  
 3591, 2380, 2601  
 4477, 2380, 2926, 2949,  
 2958  
 4479, 2380, 2386, 2926,  
 2959  
 4602, 1062  
 4741, 456  
 4963, 2441  
 5031, 2926  
 5344, 2025, 2380, 2385,  
 2610, 2611, 2719  
 5503, 2380, 2385, 2509,  
 2926  
 5614, 2380, 2926, 2949  
 5703, 788  
 6103, 2380  
 6399, 170, 1637, 1900,

2380, 2926, 2946  
 2958  
 6710, 730  
 6732, 2771  
 6740, 2380, 2741  
 6968, 1062  
 6989, 1217  
 7624, 2736  
 7715, 77, 2380  
 7716, 77, 2380  
 7901, 1361  
 8428, 2380, 2721  
 8513, 2380, 2492, 2692  
 8718, 2380, 2926, 2949  
 8779, 693  
 8862, 1086  
 9267, 2380, 2719  
 9361, 2380, 2926, 2959  
 9433, 2926  
 9632, 1309  
 9694, 295  
 9777, 1292  
 9879, 1900, 2380, 2600,  
 2624  
 10312, 1637, 2926  
 10376, 2380, 2926, 2954,  
 2958, 2969  
 10393, 2380, 2888, 2898  
 10428, 2380, 2476, 2591  
 10554, 1309  
 11102, 2926  
 11344, 2380, 2690, 2745,  
 2747  
 11604, 1637, 2380, 2926,  
 2949  
 11665, 1820, 2380, 2926  
 12028, 1062, 1113  
 12040, 2380  
 12111, 2380  
 12249, 2926  
 12307, 2380, 2926, 2979,  
 2980  
 12309, 77, 2380, 2888,  
 2920  
 12338, 1900, 2380, 2926,  
 2954  
 12427, 2926  
 12906, 426  
 13264, 2993  
 13308, 2500  
 13442, 2980  
 13486, 1900, 2380, 2926,  
 2958  
 13626, 634  
 13763, 2926  
 14558, 293  
 14563, 304  
 14569, 2380, 2669, 2752  
 15782, 2380, 2742, 2743

16138, 2026  
16142, 2006  
16238, 2380, 2705  
16609, 948  
16708, 77, 2380  
17020, 2380, 2697, 2980  
17236, 2380  
17348, 2993  
17496, 2380, 2677, 2686,  
2688  
17623, 955  
17999, 2380  
18016, 2380, 2575, 2864  
18090, 2380, 2719  
18214, 2380, 2728  
18727, 2380, 2926, 2944  
18730, 2380, 2601  
18868, 2094, 2380  
18890, 2380  
18990, 2380  
19658, 2898  
19896, 2629, 2750, 2888,  
2808  
19897, 2380, 2750, 2888,  
2808  
19935, 2926  
20104, 2380, 2926, 2946  
20280, 2952  
20314, 228  
20524, 77, 2380  
20665, 77, 2380  
20964, 622, 2008, 2380,  
2745, 2859, 2861

1890

42, 2380  
376, 2380  
682, 2380, 2580, 2707  
683, 2380, 2707  
772, 2380, 2695  
1514, 2403  
1517, 298  
1656, 1901, 2380, 2621  
1765, 2380, 2644, 2710  
1809, 470  
1878, 2380, 2597  
1897, 958, 2380, 2597,  
2611  
1951, 2978  
2239, 2380, 2704, 2707  
2547, 2246, 2380, 2926,  
2943  
2832, 293  
3004, 2380, 2604  
3240, 2380  
3393, 2380, 2570, 2888  
3606, 454  
3725, 90, 2380, 2644  
3768, 2380, 2601

3770, 2380, 2576, 2785  
3852, 534, 1816, 2048,  
2380, 2926  
4171, 1367  
4178, 2380, 2747, 2897,  
2908  
4181, 456  
4243, 1820, 2380, 2926  
4452, 228  
4900, 274  
5053, 274  
5058, 1206, 1290  
5209, 2014, 2255, 2380,  
2926, 2978  
5364, 562, 622, 2008,  
2380, 2977  
5367, 2380, 2512  
5376, 1901, 1955, 2022,  
2380, 2621  
5402, 168  
5420, 168, 563, 657,  
2380, 2637  
5730, 2380  
5917, 2076  
6910, 2380, 2723, 2727  
6951, 274  
6952, 955  
6954, 2741  
6993, 274  
7208, 958  
7301, 2380, 2552, 2926,  
2963  
7596, 2926  
7834, 681  
8090, 730  
8481, 2380, 2493, 2926  
8811, 1843, 1851, 2380,  
2926, 2963  
8843, 2926, 2380  
8915, 841  
9015, 2728  
9315, 2380, 2899  
9799, 2380  
9893, 2380, 2751, 2892,  
2899  
9958, 2380  
10012, 2380, 2917  
10116, 2380  
10134, 2380, 2597  
10259, 302  
10331, 681  
10704, 2380, 2725  
11018, 2380, 2386, 2926  
11130, 2380, 2597  
11326A, 2926  
11372, 311  
11668, 2380, 2731, 2735  
11669, 2735  
11945, 2380, 2629, 2735,

2808  
11979, 788  
12223, 2380  
12375, 2760, 2898  
12684, 2380, 2580  
12732, 2380, 2697  
13191, 2380, 2752, 2850,  
2920  
13240, 1002  
13836, 2380, 2800  
13864, 2380, 2601  
13903, 2076  
14022, 1367, 1390  
14180, 2380, 2705  
14625, 1820, 2380, 2650,  
2926  
14830, 2380, 2600  
14925, 681  
15483, 2014, 2380  
15687, 2441, 2380, 2480,  
15726, 2926  
15806, 1002  
15808, 2380, 2678, 2723  
15930, 274  
15931, 274  
15967, 2380  
15995, 297  
16049, 681  
16058, 2380, 2601  
16069, 2380, 2677, 2678,  
2910  
16189, 2926  
16468, 957  
16747, 2380  
16832, 2380  
16862, 2726  
16928, 303  
17009, 2591  
17012, 2380, 2085, 2744  
17212, 2380  
17233, 2380, 2703, 2742  
17268, 660, 2380, 2601  
17342, 2380, 2601  
18119, 220, 2380, 2649,  
2622, 2653  
18169, 303  
18472, 2380, 2544, 2926,  
2961  
18519, 2926  
18732, 391  
18751, 1003  
18989, 2380, 2601  
19160, 2380, 2470  
19376, 301  
19522, 2380, 2739  
19659, 2380, 2888  
19896, 2380  
20680, 2601  
20890, 2380

3120

## English

20973, 2380  
 20978, 570, 1875, 2036,  
 2380  
 21217, 1062  
 21294, 2380, 2510  
 22736, 2380

## 1891

48, 2411, 2479  
 115, 2433, 2479  
 298, 2926, 2960  
 236, 27, 286, 624,  
 1810, 2020  
 365, 2926  
 376, 2685, 2752, 2865  
 843, 1898  
 891, 985, 998  
 927, 301  
 2000, 1062, 1081  
 2343, 1369  
 2349, 208  
 2872, 277  
 3327, 1151  
 3342, 2746, 2911  
 3345, 2580, 2605  
 3892, 2601  
 4129, 2014  
 4712, 1062  
 5027, 2926  
 5357, 1062  
 5560, 634  
 5586, 2745  
 5700, 420  
 5719, 2624  
 5731, 2725  
 5821, 1785, 1898, 2926,  
 2964  
 5843, 2926  
 6029, 74  
 6128, 1825, 2926  
 6129, 1825, 1876, 2926,  
 2966  
 6698, 2611  
 6852, 2601  
 6917, 2725  
 6921, 2750, 2848, 2863  
 7080, 2601  
 7256, 2926  
 7272, 478  
 7362, 1062  
 8201, 2594, 2727  
 8591, 569  
 8823, 2574, 2576  
 8893, 451  
 9115, 2591,  
 9457, 681  
 9769, 2603  
 9947, 1062  
 9948, 1062

## INDEX OF PATENTS

10357, 2731, 2734  
 10747, 1956  
 11326, 2386, 2926  
 11326A, 2969  
 11383, 2926, 2944, 2954,  
 2956, 2968  
 11712, 2926  
 11831, 2622, 2632  
 11844, 2455  
 12299, 303  
 12303, 2952  
 12970, 274  
 12971, 274  
 13038, 2926  
 13507, 2926  
 13612, 1955, 1973  
 13613, 2441  
 13830, 2726  
 14738, 2601  
 14944, 1206, 1207  
 14977, 2729  
 15442, 2729  
 15975, 681  
 16098, 730  
 16512, 986, 1417  
 16647, 1062  
 17022, 304  
 17374, 420  
 17407, 1369  
 17635, 2579  
 17796, 1313  
 17831, 2597  
 17967, 2918  
 18201, 959  
 18258, 466  
 18331, 2705  
 18413, 2588  
 18470, 296  
 18801, 1369  
 19068, 1724, 2926, 2944,  
 2954  
 19215, 1383  
 19267, 2926, 2947  
 19375, 2699, 1303  
 19456, 2593  
 19494, 2703, 2741  
 19560, 43, 563, 1725,  
 1901, 2022, 2621  
 19710, 2556, 2611, 2612,  
 2670  
 19763, 2725  
 19780, 1361  
 19953, 1002  
 20225, 296  
 20448, 2926  
 20753, 2993  
 20978, 1878  
 21381, 2903  
 21561, 2718, 2719

21587, 2710  
 22018, 813, 985  
 22115, 2594, 2725  
 22262, 2612  
 22481, 843, 985  
 22610, 2586  
 22704, 1366  
 24638, 2621

## 1892

349, 2677, 2679, 2748  
 610, 818  
 1061, 426  
 1439, 1313  
 1488, 2710  
 1566, 2588, 2705  
 2253, 2591  
 2261, 1062  
 2307, 228  
 2626, 306, 1032  
 3067, 2601  
 3096, 2601  
 3364, 2129  
 4167, 2745  
 4169, 2586  
 4411, 681  
 4458, 2646  
 4920, 2122, 2725  
 5597, 2750  
 6028, 2713  
 6258, 2926  
 6448, 1854, 2926  
 6542, 2401  
 6543, 2386, 2401  
 6657, 1062  
 7238, 170, 2926, 2957  
 7323, 959  
 7324, 2697, 2981  
 7501, 2888  
 7688, 2581  
 7698, 2601  
 7772, 2741  
 7978, 2926, 2956  
 8700, 3062, 3077  
 9126, 301  
 9284, 2024  
 9359, 2926  
 9697, 2728  
 9889, 2609  
 10450, 1292  
 10675, 2723, 2726  
 11253, 2892  
 11254, 2749, 2864  
 11504, 681  
 11521, 2604, 2710  
 11597, 2707  
 11705, 1446  
 12390, 2555  
 12415, 2926

12660, 2395	2883, 1062	15084, 2926, 2964, 2981
12726, 1222, 1290	3111, 1062	15174, 569
12732, 2589	3302, 470	15174, 597
12744, 2926	3469, 2605	15218, 1303
12940, 2926	3557, 2492, 2585, 2693	15332, 294
13024, 303	3748, 958	15566, 2926
13847, 299	3773, 2066	15686, 2385, 2606, 2891
14105, 277	4214, 2899	15865, 1711, 2247, 2926
14264, 1062	4342, 1062, 1206	15886, 2247, 2926
14726, 2563	4487, 2764	15897, 2247, 2926
14943, 301	4627, 2897	15895, 1206, 1217, 1221,
15513, 681	4780, 2980	1287
15720, 294	5178, 296	15937, 2601
15967, 2610, 2619	5216, 2587	16071, 2740
16375, 294	5349, 1062	16069, 2926
16507, 2926	5504, 2629, 2897	16098, 225
16747, 2707	5617, 428	17308, 2926
16757, 1206, 1229	5674, 2610, 2619	17602, 1206, 1251, 1383
17927, 2476	6501, 2692, 2906	17699, 1363
17968, 2740	6542, 2888	17703, 2441, 2480
18032, 2593, 2611	6906, 2651	17781, 2441, 2480
19078, 681	6960, 846, 985, 993	18173, 1299
19213, 1369	7112, 297	18719, 299
19242, 958, 2612, 2700, •	7238, 2970	18824, 2741
2701	7277, 2066, 2487, 2491,	18831, 1359
19764, 2740	2496	19095, 2624, 2638
19789, 1062	7781, 2385, 2457, 2487,	19481, 2601
20145, 298	2491, 2500	19602, 2699, 2729
20269, 1062	7954, 2684	19810, 2749, 2900
20498, 2521	8248, 2731, 2734, 2736	19854, 2594, 2728
20598, 2700	8650, 2891	19931, 2926
20880, 2124, 2926 •	8902, 788, 846, 986,	20036, 286, 290, 306
21294, 958	987	20066, 2926, 2958
21485, 1790, 2626, 2669,	8956, 2751, 2903	20234, 2386, 2544, 2599,
2753	9042, 1062	2606
21938, 2385	9206, 2705, 2711	20327, 2926
22023, 2926, 2965	9514, 1002, 1366	20467, 1850, 2926
22506, 225	10465, 2385, 2502	20604, 1062
22577, 2706	10639, 2705	20630, 428
22736, 2622, 2632	11502, 2926	21052, 2730
22739, 1825	11645, 1867, 2926	21409, 2584, 2677, 2693
22756, 2455	11807, 1062	21455, 2693
22817, 2993	12304, 2891	21593, 2727
23105, 2926, 2980	12367, 170, 2617	22053, 335
23377, 2926	12604, 898	22137, 2385, 2581, 2693
23748, 301	12927, 286, 311, 2414	22327, 1369
27529, 228	13484, 2705	22384, 2551, 2926
28870, 225	13587, 303	22455, 2585
• 1893	13654, 812	23366, 2731, 2732, 2733,
118, 2926	13655, 730	2734, 2736
580, 1897, 2926, 2972	13656, 730	27416, 1811, 2926
1283, 2722, 2726	13838, 2587	23417, 2926
2119, 1062	13926, 2891	23579, 2926
2177, 2728, 2729	13927, 1003	23773, 2926
2476, 1369	14074, 2908, 2916	24003, 2622, 2632
2507, 426 •	1409, 2926	24425, 2926
2690, 2731, 2734	14191, 295	24503, 298
2835, 1369	14272, 2892	24634, 2710, 2720
	14274, 2605	24638, 2901, 2022, 2621



## English

24695, 2576, 2606  
24739, 1380  
24901, 2578

## 1894

409, 271, 3062  
824, 2883  
943, 102  
1074, 2926, 2971  
1146, 448  
1372, 2611  
1478, 2731, 2732, 2733,  
2738, 2741  
1485, 2903  
1755, 2982  
1982, 2926  
2036, 2892, 2918  
2173, 1062  
2400, 2926  
2743, 301  
2923, 294  
3024, 2926  
3866, 2386  
4018, 2401, 2442, 2479  
4195, 1062  
4203, 2680, 2712  
4454, 2909  
4606, 2903  
4626, 2926  
4795, 2926, 2978  
4796, 2926, 2978  
4797, 2926, 2978  
5054, 77, 2650  
5354, 2728  
5368, 2727  
5647, 2600  
5808, 813, 985  
6021, 934  
6087, 2748, 2911  
6800, 2773  
6888, 2601  
7098, 2926  
7412, 811  
7600, 2636, 2746  
8027, 2728  
8558, 513, 612, 618,  
2623  
8964, 293  
9054, 2414  
9261, 2566, 2617  
9565, 2556  
9674, 425  
9676, 2988, 3006  
9782, 788, 799, 986  
9798, 2926  
9872, 813  
10097, 2728  
10112, 2432  
10326, 304

## INDEX OF PATENTS

10466, 102  
10772, 2496  
10956, 452, 455  
11216, 2456  
11458, 2926, 2955, 2985  
11606, 2579, 2670  
11988, 1011  
12019, 2726  
12084, 2926, 2945, 2978  
12085, 2978  
12218, 944  
12590, 2726  
12649, 2697, 2980  
12675, 1222  
12980, 2441, 2456  
13341, 2714, 2742  
13506, 2926  
13596, 2601  
13823, 2676, 2720, 2981  
13838, 2617, 2671  
14014, 1287  
14215, 1369  
14335, 2660  
14414, 2726  
14520, 985  
14862, 2576, 2729  
15327, 2585  
15522, 2646, 2647  
15887, 2926  
15914, 2386, 2536, 2538,  
2543, 2544, 2732  
2771  
16785, 2637  
17001, 2679, 2697  
17289, 748  
17544, 2504  
17747, 2579, 2670, 2693  
17758, 2882  
17994, 2953, 2678, 2980  
18358, 477  
18496, 2926  
18682, 1818, 2926, 2958  
18683, 1422, 1425, 2034  
18727, 1355  
16921, 2926  
18940, 1344  
19175, 2556  
19299, 2251, 2926, 2082  
19388, 225, 233  
19684, 2926  
20281, 1858, 1861, 2926  
20308, 223, 233  
20359, 71, 2610  
20521, 2441, 2456, 2478  
20984, 2698, 2729  
21331, 2551  
21344, 456  
21443, 2713  
21729, 534, 2046

21735, 2763  
22010, 2739  
22019, 1892, 2025  
22566, 296, 569, 2926  
22844, 1369  
22853, 813  
23007, 2926  
23260, 2174, 2926, 2979  
24009, 2622, 2632  
24235, 2926, 2945, 2957,  
2974  
24511, 447  
24614, 2677, 2678  
24898, 2926  
24901, 2457, 2547, 2691  
25040, 297  
25058, 2981  
25242, 455  
25327, 2926

## 1895

134, 2740  
138, 949  
196, 1062  
417, 2442, 2479  
610, 985  
1168, 1236, 1262  
1193, 2926  
1322, 1062  
1372, 2591  
1587, 2601  
2196, 2562  
2431, 2711  
2466, 811, 814, 980  
3183, 1302, 1380  
3242, 2790  
3477, 2993, 2994  
3652, 2688, 2698  
3653, 2726  
4769, 135, 241, 288,  
1900, 2013, 2015,  
2246, 2926  
4798, 2510, 2601  
4856, 1206, 1212, 1289  
4940, 2564  
5255, 2398  
5354, 729, 730  
5533, 225, 233  
5636, 2696  
5657, 2601  
6067, 2704  
6106, 2980  
6271, 2926  
6280, 2926, 2947, 2948,  
2969  
6327, 2926  
6473, 2612, 3061  
6656, 2729, 2740  
6711, 2994

6855, 2680, 2730	16862, 2978	• 2673
7104, 2862	17351, 2512	2235, 2544, 2726
7188, 2877, 2882	17935, 2979	2489, 789, 811, 814
7231, 2027	18040, 228	2568, 2593
7273, 812, 986	18233, 2564, 2726	2575, 2682
7637, 229	18297, 2518	2595, 2622, 2632
8011, 2507, 2609	18821, 2723, 2727	2685, 303
8035, 2587	18935, 1878	3288, 295
8215, 2611	18937, 2601	3365, 2527
8374, 1062	19130, 2754	3555, 2518
8569, 2927, 2978	19192, 818, 985	3906, 1062
8915, 2388, 2591	19667, 2927	3987, 2994
8960, 2611	19788, 2601	4062, 2610, 2619
9624, 2585, 2615	20155, 2712	4411, 2612, 2687
10442, 681	20197, 2688, 2729	4509, 2927
10716, 302	20785, 225	4713, 3063, 3077
10762, 198	21470, 1639, 1693, 2609,	4714, 2927
10940, 2441, 2456	2752	5012, 1206
11038, 2595, 2645	21658, 2601	5098, 1290
11278, 2729	21670, 2741	5184, 1062
11283, 2927	21717, 2619	5415, 1639, 2983
11290, 2978, 2980	21742, 958	5506, 2699
11424, 2927	21755, 931	5637, 2905, 2983
11706, 2677, 2878, 2912	21778, 1359	5844, 431
11821, 2891, 2892	21905, 2606	5924, 2704
11917, 2726	21997, 931	5925, 2677, 2708
12316, 1300	22037, 1062	5926, 2704
12325, 1900, 2927	22038, 1062	6096, 1062
12434, 2743	22039, 1062	6132, 947
12461, 300	22138, 2749, 2876	6389, 1779
12471, 944	22351, 2457	6431, 2927
12527, 2962	22608, 2927	6555, 2927
12624, 452, 453	22715, 1306	6640, 2979
12711, 660	22918, 453	6651, 2856
12768, 2927, 2957	23242, 2927	6711, 2998
13161, 2983	23438, 2742	6858, 2388, 2414, 2492,
13171, 1206, 1229	23443, 2927	2576, 2625
13562, 2556	23508, 294	6937, 2952, 2927
13692, 2647	23680, 2704	7001, 2677, 2705, 2708
13826, 824, 826, 986	23685, 2704	7429, 2645
14221, 1360	23819, 811, 986	7562, 2704
14274, 2891	24283, 2587	7711, 2981
14334, 2597, 2720	24455, 426	8064, 1059, 1062, 1081
14555, 2741	24456, 461	8069, 2601
14775, 2927	24847, 1789, 2927, 2957	8072, 1062
14948, 2694	24938, 2723, 2726	8235, 225
15217, 2901	25013, 955	8689, 2713
15249, 2581, 2704		8982, 2652
15349, 2669		9353, 2678
15725, 2741, 2743		9521, 2443, 2457, 2490
15762, 2441, 2466, 2478	210, 298	10103, 2670, 2693, 2697
15783, 2998	877, 2612	10104, 2612, 2709
15834, 2927	999, 2251, 2491, 2927,	10105, 2612, 2670
16248, 2660	2947	10403, 2927
16311, 2927, 2954, 2958	1228, 958, 2597, 2701	10868, 2622, 2632
16495, 2705	1300, 1300	11182, 2612
16785, 2643	1347, 2728	11527, 2721
16790, 2927	1573, 2752, 2899	11842, 2927
16861, 2978	1858, 1697, 2390, 2624,	11927, 2626

1896

## English

2056, 2595, 2649	22139, 2442, 2480	2713, 2647
2451, 2603, 2612, 2623	22162, 1790, 2551, 2927,	3121, 2864, 2908, 2917
2766	2084	3135, 2927
2643, 1062	22190, 2952	3218, 225
2682, 298	22512, 1369	3491, 959
2693, 2581, 2612	22540, 2388, 2640, 2927	3795, 1062, 1081
22870, 2619, 2680, 2859,	22717, 1423	3832, 2635
2861	22965, 2601	4062, 2927
13198, 2606, 2641	23508, 2927	4672, 2927
13269, 2927	23554, 430	4891, 2726
13270, 2927	23741, 225	5350, 225
13746, 2927	24132, 2585	5573, 225
13773, 2729	24568, 2442, 2480	5635, 2728
13844, 1013, 1062	24790, 2612	5762, 2601
13895, 2878	25031, 958	5790, 2953
13922, 2927	25100, 2994	6112, 233
14077, 2859, 2861, 2862	25133, 1062	6122, 225
14320, 2973, 2981	25369, 2587, 2619	6296, 2927
14343, 2704, 2705	25675, 2578	6461, 2927
14552, 2441, 2478	25704, 2927	6769, 2751, 2862
14774, 841, 1268, 1464	25711, 2927	6772, 2927
14844, 2562	25779, 2388, 2584, 2741	6817, 2704
15022, 2927	25809, 2612	6916, 1269
15351, 2927, 2945, 2957	26695, 3078, 3081	7066, 789
15852, 2751, 2856	26704, 1825	7093, 225
15870, 2705, 2762	26819, 2927	7127, 1282
16312, 1062	26952, 2724	7178, 2927, 2978
16840, 225	27197, 2927, 2959	7330, 2595
16858, 2112, 2251, 2927,	27215, 2741	7386, 2587, 2690
2043	27290, 2981	7508, 2693
17204, 2927	27296, 2704	7867, 2751, 2867
17307, 2927	27718, 1460	7975, 2593, 2612
17717, 2581	27769, 1363	8231, 2597, 2699
18034, 2927	28220, 2927	8335, 1062
18035, 2514	28498, 2745	8800, 2587
18078, 2927	28499, 225	9056, 225
18137, 841	28613, 2500, 2629	9111, 2927
18265, 308	28870, 225	9353, 2679, 2699
18561, 2698	28889, 2927	9431, 2634
18741, 2743	28891, 1381	9517, 228, 229
18804, 2599, 2608	29261, 2751	9535, 2927
19329, 2698	29504, 225	9970, 2927
19408, 2713	29598, 2927, 2962	10098, 2750, 2912,
19428, 225, 229	29832, 225	10362, 2927
19588, 2750, 2808	30161, 2755	10487, 102
19633, 225		10784, 225, 230
20060, 2927, 2961, 2972		10918, 2708
20200, 843, 985	231, 2700	11053, 2859
20387, 2917	586, 430	11151, 1062
20714, 228	633, 2612, 2624	11313, 225, 230
20895, 2927, 2977	651, 2927, 2952	12054, 2612
21031, 2524	758, 2619, 2687	12785, 2891
21081, 2907	1144, 421	12962, 2998
21252, 225	1154, 2927, 2985	13552, 2927
21505, 2916	1194, 2699, 2700	13724, 2927
21942, 225	1762, 1266	13822, 2927
22120, 2927	2557, 2927	14196, 2927
22125, 2688, 2704	2592, 2982	14201, 228
22120, 2704	2667, 2599	14328, 2518, 2651, 2927,

## 1897

2964,	26659, 2597, 2699	4445, 2629, 2890
14439, 2597,	26677, 2606, 2619	4556, 226
14514, 2704	27020, 225, 230	4678, 2701
14674, 2711	27435, 225	4945, 295
14690, 1640, 2031, 2093,	27534, 2578, 2612	5061, 2701, 3076
2111	27559, 2728	5286, 1710, 1898, 2251,
15085, 2708	27560, 2611	2659, 2927
15169, 225	28467, 2441, 2178	6057, 1157
15499, 2927, 2938, 2978	28613, 2906	6228, 2927
15509, 1292	28631, 71, 75, 85, 92	6546, 65
15693, 2132	28807, 2927	6700, 2647
16746, 225	28891, 1423	6756, 1785, 2927, 2980
16777, 2943, 2948	29363, 2891	6769, 2848, 2859
17122, 2751, 2909, 2917	29389, 2927	6858, 92
17302, 2606, 2624	29613, 225	6984, 2994
17397, 225, 228, 230	29729, 2704	7088, 1033
17444, 456	29746, 839, 845	7269, 1030, 1062
17476, 1033	30142, 225	7317, 226
17602, 2617	30253, 2927	7562, 2927
17901, 102	30357, 2698	7687, 226
18120, 2597	30442, 2927	7688, 226
18189, 843, 1464	30579, 298	8044, 2927
18698, 2598, 2649	30735, 2953	8250, 1816, 1825, 2977,
18929, 2927		2982
18930, 338, 2252	<b>1898</b>	8468, 2927
20143, 2698	110, 2501	8470, 2927
20664, 296	142, 1062	9190, 2927
20825, 2723, 2726	223, 2994	9546, 2927
20948, 2698	232, 2927	9682, 302
20955, 2993	233, 2993	9737, 2576, 2677
21209, 2708	406, 2741	9885, 226
21361, 2701	409, 2711	10246, 226
21543, 2680, 2890	509, 65	10420, 2705
21878, 2415	526, 225	10432, 2606
21939, 2741	1020, 3063, 3075, 3076	10798, 226, 229
22022, 3074, 3081	1021, 2594, 3063, 3075,	10799, 226
22161, 2699, 2727	3076	10943, 226
22205, 2612	1022, 3063, 3075	11156, 1789, 2660
22395, 789	1126, 2927	11544, 1355
22413, 2698	1208, 2415	11633, 1062
22414, 2679, 2698, 2699	1358, 660, 2708	11927, 1781, 2649, 2753
22415, 2679, 2698, 2699	1839, 225, 3066	11974, 306
22416, 2698	2125, 2981, 2982	12020, 428
22640, 960	2264, 1811, 2927	12096, 296
22816, 985	2307, 226, 228	12379, 226
23268, 225	2584, 2606	12404, 1785, 2927, 2980,
23340, 2927	2816, 2396	226
23866, 455	2868, 2603	12669, 226
24121, 1062	2869, 2603	12717, 2704, 2707
24136, 2927, 2946, 2978	2915, 226	12760, 2927, 2961
24275, 2981	3468, 2978	12761, 2927
24675, 2695, 2696	3493, 2595	12867, 1892, 2671
24742, 2648, 2761	3678, 2718, 2764, 2774	12885, 2671, 2684
25204, 2927, 2943, 2954	3770, 2645, 3059	13495, 226
25240, 2660, 2761	3863, 2927, 2983	13528, 2710
25413, 2927, 2943, 2962	3898, 2625, 2637, 3082	13660, 2698
25948, 225	3976, 1816, 2927	13711, 2927
26247, 225	4067, 226	13953, 226
26381, 2595, 2645, 3059	4192, 1856, 2927	14472, 226
		14728, 1167

## English

14814, 2008, 2017	24468, 2027	2767, 209
14870, 2027	24000, 293	2826, 2927, 2943, 2946
14917, 226	24662, 1703, 2027, 3019,	3091, 304
15140, 2503	3021, 3058	3113, 228
15202, 2648, 2761	24750, 2891, 2919	3185, 1117
15362, 2740	24768, 328, 606, 1878	3247, 2927, 2955
15553, 2927, 2952, 2985	24784, 226	3914, 226, 2617
15501, 2397	24904, 294	4080, 711, 900
15947, 1062, 1138	25158, 1161, 1163	4170, 226
15948, 1062, 1137	25475, 929, 933, 934	4237, 2718, 2888
15949, 1141	25568, 2027	4290, 2882
15950, 1151	25838, 2027, 2955	4507, 2027
16186, 2508	25881, 226	4631, 2612
16220, 1369	26103, 2727	4643, 696, 987
16823, 226	26169, 1383	4773, 226, 3066
16921, 2686	26397, 2591	4960, 1062
16953, 2027	26501, 299	5344, 1874
16966, 209	26529, 2027	5469, 226, 233
17135, 2771	26728, 226	5703, 226
17159, 2415	26736, 2027	5760, 2027
17167, 2882	26811, 299	5793, 2888, 2890
17206, 1062, 1116, 1117	26803, 2606, 2982	5926, 2992
17497, 1785, 1788	27001, 2704	6249, 226, 230
17549, 2006	27012, 2093	6315, 228, 3066
17878, 2027	27236, 2771	6523, 2927
18002, 1806, 1875, 2027	27240, 815, 993, 2503	6557, 75, 85
18167, 2860	27316, 2027	6641, 85
18233, 2251, 2927, 2044	27361, 226	6656, 1803, 2927
18283, 3024	27373, 2875	6735, 85
18376, 1206, 1215, 1243	27376, 1356	6769, 226
18550, 2740	27397, 1640, 2031, 2093,	6777, 789, 814, 846,
18643, 2891	2111, 2555, 2927,	986
18697, 3075	2943	6815, 2993
18808, 1702, 2251, 2027	27529, 228, 233, 3006,	7020, 2387
18935, 1811, 2027, 2945,	2624	7352, 2927
2046		7357, 1062
19021, 442	<b>1899</b>	7428, 206
19074, 2031, 2027	54, 226	7729, 2881
19806, 2167	58, 2635	8123, 1062
19907, 1286	63, 3050	8164, 104, 2655
20037, 2585, 2705	189, 306	8247, 2704, 2709
20445, 2907	246, 2725	8275, 294
20520, 2952	285, 1157	8409, 1879, 2927
20660, 2745, 2896, 2882,	320, 2741	8679, 1806, 2927
2010	350, 2694, 2714, 2715	8680, 1806, 1879, 2927
20889, 2927	548, 2739	9062, 2927, 2945, 2965
21299, 681	818, 2678, 2712	9452, 226, 3066
21316, 1081, 1108	859, 226	9521, 226, 3065
21844, 1889	887, 2888	9577, 3070, 3082
22029, 3006, 3018, 3019	1035, 446	9716, 294
22101, 226, 3065	1079, 226	9811, 2597
22674, 2615, 2898	1338, 2027	9879, 2704
22713, 2888	1859, 1117	9937, 226, 3065
23135, 226	2211, 226, 3066	9966, 2598
23325, 226	2421, 2714	9983, 2591
23981, 957	2610, 297, 2597	10071, 2927, 2963
24013, 2404	2645, 2018	10470, 2716
24274, 2726	2708, 226	10757, 1206, 1212, 1290
24433, 226		10936, 226, 3065

10943, 226	17165, 2888, 2892	24188, 226, 3065
11181, 2615	17277, 2765	24307, 921
11344, 2744	17292, 2892	24375, 2927
11345, 2927	17446, 2888, 2892	24377, 2927
11416, 453	17642, 226	24397, 226
11434, 2694	17657, 2648	24411, 2724
11509, 226	17692, 681	24561, 1956, 2029, 2978
11929, 634, 2060	17738, 2848	24721, 2601
12077, 2505	17852, 2916	24731, 1062
12152, 2750, 2891	17883, 3082	24748, 1062, 1117
12157, 2388, 2497	18200, 91	24847, 4208
12241, 290, 2415, 2416	229	25069, 2157, 2516
12316, 1820, 2927	18350, 730	25076, 612
12392, 2927	18516, 2927	25077, 2992
12515, 2751, 2875, 2882	18550, 2508	25094, 956
12516, 2882	18586, 2624, 2693	25216, 2507
12517, 2882	18802, 2457, 2546	25297, 2908
12591, 1702, 2252, 2927,	18870, 2508	25359, 2505
2056	18884, 91	25434, 2546, 2547, 2616,
12841, 1270	18897, 817, 985	2659, 2891
12879, 2645	19273, 226, 233	25519, 2748
12900, 2729	19549, 431	25638, 226, 3066
13068, 2902	19683, 2751, 2856	25675, 2704
13171, 2927, 2944	19843, 2882, 2906	25703, 226
13238, 1785	19836, 226	25737, 2387
13278, 2031	20011, 226	
13287, 2539	20092, 513, 2576, 3061	<b>1900</b>
13300, 12	20135, 2993	156, 226, 233
13331, 89, 91, 138	20220, 2713, 2716	214, 2927
13514, 226, 3065	20239, 2539	249, 2751, 2908
13846, 328, 2660	20630, 85, 2631	258, 203
13932, 2711, 2744	20934, 2660	259, 263
14032, 226, 3065	20964, 2684	159, 226
14094, 2888	21462, 226	618, 1114
14227, 2766	21192, 226, 3065	817, 1062, 1072
14233, 2388	21347, 2703	821, 927
14320, 226, 1114, 3066	21488, 226, 3067	1072, 908, 789, 817
14414, 2594	21514, 2729	1216, 1062, 1203, 1215
14525, 74, 3051	21962, 297	1560, 2731, 2733, 2736
14919, 958	22095, 226, 3065	1561, 2731, 2733, 2736
14932, 226	22186, 2616, 2755	1577, 226
15057, 2731, 2732, 2733,	22292, 226, 3067	1609, 2606
2734, 2738	22391, 2612	1736, 226, 3066
15159, 1116, 1117	22710, 2700	1763, 92
15300, 928	22712, 2927	1828, 958
15309, 2598	22867, 1781, 2731, 2732,	1885, 442
15355, 1785, 1790, 2751,	2733, 2737	1888, 2976
2755	23059, 2892, 2864, 2908	2089, 1081
15397, 2726, 3066	23098, 226	2157, 228
15418, 2597	23442, 2927	2459, 425
15529, 298	23449, 2167	2509, 2612
15888, 2722, 2725	23497, 2732, 2733, 2737	2699, 226, 3066
16238, 2709	23541, 2089	2770, 2749, 2892, 2899
16247, 2477, 2598, 2685	23685, 226	3228, 929
16595, 2927, 2945, 2948,	23729, 2624, 2631	3329, 929
2956	23826, 2744, 2748, 2893	3416, 226
16782, 226	24101, 85, 2649	3466, 226
16795, 2579	24163, 226, 229	3529, 2978
16861, 2680	24180, 2712, 2714	3710, 2728

## English

- 3918, 730  
 3975, 957  
 4052, 2731, 2732, 2734  
 4165, 2728  
 4272, 1206, 1230  
 4303, 85, 92  
 4309, 298  
 4363, 2712  
 4452, 228  
 4534, 233  
 4593, 2252, 2927, 2944,  
 2969  
 5400, 226, 3066  
 5509, 2598, 2677, 2694  
 5755, 2659, 2761  
 5830, 2078, 2927  
 6045, 917  
 6385, 2646  
 6831, 298  
 7123, 2748, 2910  
 7189, 227  
 7251, 2714  
 7301, 2092  
 7583, 2927, 2961  
 7594, 2732, 2736, 2738  
 7597, 958, 2561  
 7631, 2728  
 8088, 2748, 2908, 2911  
 8133, 948  
 8207, 92, 2492  
 8230, 227, 3066  
 8299, 1303  
 8300, 1303  
 8514, 430  
 8567, 2728  
 8578, 2746, 2908  
 8654, 227  
 8663, 2728  
 8752, 1313  
 8758, 2927  
 8799, 2624  
 8930, 2731, 2733, 2737  
 9087, 2626, 2893  
 9088, 2595, 3059  
 9142, 681  
 9266, 2711  
 9350, 927  
 9505, 227, 3066  
 9517, 298  
 10295, 1025  
 10317, 1062  
 10456, 2927, 2964  
 10703, 2594  
 10805, 2728  
 11077, 227, 3065  
 11302, 2652  
 11436, 226, 3065  
 11469, 2731, 2733, 2737  
 11526, 2601  
 11567, 2253, 2927, 2944  
 11599, 2688, 2785  
 11663, 2686, 3076  
 11664, 3076  
 11687, 1062  
 11749, 149, 3033  
 11751, 2538  
 11912, 921  
 11929, 1956  
 12107, 2705, 2750  
 12160, 2594  
 12327, 226  
 12454, 227  
 12550, 227  
 12580, 226  
 12905, 688  
 12910, 391  
 13131, 2543  
 13171, 2698  
 13255, 298  
 13259, 2595  
 13317, 2861, 2904, 2908,  
 2919  
 13344, 2731, 2733, 2736  
 13415, 2701  
 13659, 480  
 13701, 2771  
 13973, 2660  
 14035, 294  
 14114, 2564  
 14231, 2393  
 14283, 227  
 14428, 455  
 14475, 2739  
 14583, 2927  
 14754, 2532  
 15134, 1062  
 15329, 227  
 15343, 1809, 2624  
 16161, 227  
 16253, 1062, 1203  
 16254, 1108  
 16277, 2927  
 16332, 2613, 2624, 2710  
 17034, 1161  
 17253, 2609, 3077, 3078,  
 3079  
 17378, 2393  
 17687, 2595, 2598  
 17759, 2622  
 17860, 2927  
 17928, 1251  
 17948, 2539, 2541  
 18017, 2737  
 18040, 1306  
 18191, 1108  
 18722, 2708  
 18742, 900  
 18831, 2703  
 18864, 78  
 18920, 2977  
 18923, 2977  
 19039, 132, 149, 150,  
 504, 1901, 3000,  
 3025  
 19074, 678, 681, 895,  
 900, 912, 943  
 19254, 681, 695, 853  
 19773, 2927, 2945, 2956  
 19937, 227  
 20132, 2253, 2927  
 20136, 227, 3066  
 20346, 294  
 20377, 227  
 20461, 2622, 2644  
 20710, 2732, 2733, 2737  
 20733, 2542  
 20799, 1848, 1856, 2927  
 20800, 2927  
 20801, 85, 92  
 20874, 2576, 2593  
 21065, 2927, 2981  
 21068, 2927  
 21148, 957  
 21222, 302  
 21293, 78, 2659  
 21376, 1385  
 21397, 227  
 21560, 3001  
 21627, 2927  
 21737, 296  
 21819, 929  
 21820, 929  
 22019, 2598, 2701  
 22570, 1081  
 22688, 1816, 1887  
 23052, 1269  
 23157, 2636, 3074  
 23158, 2636  
 23198, 730, 2993  
 23252, 1806, 2285, 2927  
 23470, 227, 3065  
 23493, 1075  
 23801, 2927

## 1901

- 50, 3081  
 536, 2601  
 548, 2711, 2712  
 688, 2598  
 701, 2704  
 715, 2731, 2732, 2733,  
 2735  
 891, 834  
 926, 2731, 2732, 2733,  
 2734, 2735  
 984, 2927  
 1160, 2613, 2692, 2760

- 1221, 2762  
1374, 227  
1385, 1157  
1386, 2401  
1515, 1088  
1516, 1369  
1587, 2699, 2765  
1721, 2762  
1760, 2712  
1850, 102, 2636  
1874, 2721  
1904, 1141  
1934, 2747, 2748  
2253, 2253, 2944  
2294, 463  
2335, 798  
2339, 1788, 2626  
2368, 1062, 1157  
2407, 1075, 1122  
2651, 2979  
2697, 227, 959  
2713, 688  
2756, 1298  
3062, 2601  
3217, 446  
3305, 815, 985  
3327, 1062, 1190  
3329, 927  
3392, 2998  
3482, 2728  
3530, 1364  
3568, 227, 3066  
3592, 3070  
3656, 298  
3725, 2167  
3861, 2624, 2638, 2692  
4199, 203  
4200, 2522  
4237, 2677, 2688, 2689  
4326, 2333  
4403, 927  
4610, 1111, 1117, 1120  
4707, 2596  
5076, 2079, 2147, 2625,  
2626  
5221, 2927  
5405, 2598  
5427, 2700  
5596, 608  
5655, 227  
6159, 2927, 2947, 2957  
6226, 927  
6507, 2603  
6534, 299  
6644, 223  
6828, 1122, 1141, 1150  
6829, 1141  
6860, 2596  
7148, 2927  
7258, 2564  
7272, 2743  
7480, 227, 3066  
7561, 2579  
7710, 1206, 1229, 1283  
7718, 2722, 2728  
7725, 1062  
8063, 2578  
8069, 2728  
8072, 2538, 2671  
8076, 102, 106, 227,  
2612  
8088, 215, 1062  
8101, 2927, 2947  
8230, 685, 695, 852  
8280, 1698, 1766, 1888  
8301, 1786, 2676  
8331, 391, 442  
8365, 2927  
8407, 2725  
8408, 2725  
8545, 1111, 1121  
8821, 2927  
8923, 2405, 2460  
8944, 2708  
9133, 996  
9482, 2642, 2647  
9538, 2712  
9589, 295  
9608, 2703  
9679, 2705, 2718  
9727, 2732, 2737  
9763, 2917  
9934, 2694, 2711  
9984, 2255, 2927  
10029, 2636  
10190, 2560  
10213, 2539  
10286, 2698  
10351, 1062  
10412, 1161, 1163  
10535, 296  
10663, 2481  
10729, 1111, 1115, 1120,  
1150, 1151  
11400, 2927  
11442, 425  
11446, 2728  
11792, 1107, 1119  
11887, 2728  
12286, 1421  
12309, 648, 2625  
12325, 2527  
12349, 1062  
12476, 227  
12836, 2980  
12588, 203  
12617, 2927, 2965  
12695, 1899  
12781, 1115, 1138  
12863, 2539, 2545, 2553,  
3040  
13302, 1062  
13620, 2978  
13694, 843, 1464  
13877, 2977  
14231, 2386, 2927, 2958  
14391, 2560  
14420, 2601  
14525, 2927  
14676, 1784, 1825, 2927,  
2975  
14976, 1108  
14977, 1108  
14981, 2754  
15058, 2728  
15141, 1826, 2927, 2957  
15250, 1062  
15452, 2728  
16337, 1203  
16429, 2584, 2610, 2619  
16486, 2906  
16653, 2595, 2646  
16668, 2593, 2982  
16694, 2927  
16919, 2556  
16930, 2568  
16984, 2561  
17580, 1062  
17626, 2927  
17735, 227  
17950, 2856  
18157, 296  
18161, 2389, 2927, 2952,  
2957  
18417, 2700  
18728, 227, 230  
18744, 2691  
18944, 2741  
19013, 77  
19089, 227  
19249, 2604  
19555, 227  
19585, 570  
19720, 428  
19902, 1062, 110  
19912, 3072, 3076  
20079, 1062, 1076  
20117, 2750, 2983  
20142, 1200, 1217, 1221,  
1251  
20143, 1206, 1267  
20165, 2730  
20253, 2726, 2728  
20296, 2724, 2728  
20394, 227  
20396, 3078  
20397, 3069, 3070, 3071,



## • English

3079  
 20308, 3069, 3078, 3079  
 20506, 1062, 1075  
 20747, 2595, 3059  
 20755, 2927  
 21007, 1081  
 21268, 3058  
 21424, 802  
 21546, 1062  
 21621, 2927  
 21628, 149, 2309, 2404,  
 3006, 3013, 3024,  
 3025, 3028, 3030,  
 3040, 3053, 3061  
 21645, 227, 230, 3065,  
 3066  
 21834, 2700, 2714, 2715  
 21999, 2560  
 22040, 2853  
 22148, 2705  
 22273, 2732, 2737  
 22303, 78  
 22662, 2539, 2544  
 22709, 2732, 2733, 2737  
 22965, 1898, 2978  
 22966, 2927  
 22996, 227  
 23155, 2501  
 23181, 227, 3066  
 23252, 2111  
 23284, 2927, 2947  
 23384, 2695, 2728  
 23880, 2927  
 23892, 3057  
 24118, 2927  
 24132, 2912  
 24183, 2732, 2733, 2737  
 24205, 2677, 2716  
 24381, 304  
 24509, 2737  
 25233, 2927, 2952  
 25234, 2917  
 25444, 1344  
 25688, 3023  
 25772, 2553  
 25884, 2927  
 25903, 2554  
 25904, 2558  
 26075, 3039, 3041, 3045  
 26155, 2728  
 26260, 295  
 26306, 927  
 26537, 1113  
 26617, 1780, 2927, 2962,  
 2983  
 26618, 2525  
 26619, 2525  
 26620, 2524

## 1902

28, 300  
 60, 2722, 2725  
 76, 301  
 152, 2725, 2728  
 454, 2596  
 698, 895, 897, 911,  
 915  
 788, 1389  
 1111, 2728  
 1225, 2677, 2678  
 1329, 681  
 1377, 2677, 2709  
 1804, 2728  
 1967, 2700  
 2036, 2704, 2706, 2711  
 2037, 2691, 2704  
 2038, 2704, 2709  
 2052, 2724  
 2129, 2532  
 2143, 2612, 2669  
 2202, 227  
 2250, 2679  
 2262, 2769  
 2264, 2659, 2660, 3019,  
 3022, 3035, 3058  
 2302, 2724, 2728  
 2379, 1386  
 2402, 1075  
 2456, 927  
 2461, 898, 946  
 2476, 1732, 2623  
 2524, 227  
 2529, 2635, 2892, 3067,  
 3075, 3080  
 2849, 2703  
 3161, 1157  
 3177, 1974  
 3178, 299  
 3238, 2927  
 3334, 1780, 2927, 2962,  
 2983  
 3356, 2686, 2689, 2726  
 3676, 227  
 3930, 481  
 4026, 1116, 1157  
 4369, 2609, 2723, 2727,  
 2728  
 4379, 2643  
 4383, 2540  
 4528, 228  
 4781, 2927  
 4886, 149, 150, 3007  
 4892, 1062  
 4982, 2723, 2728  
 5308, 2598  
 5348, 2581, 3056  
 5403, 2591

5404, 2503  
 5541, 2564  
 5931, 227  
 6051, 838, 1206, 1218,  
 1223  
 6103, 2981, 2982, 2985  
 6645, 3077  
 6741, 201  
 6894, 227  
 6913, 2685  
 7088, 3027, 3031, 3036,  
 3038  
 7119, 1062  
 7146, 2731, 2732, 2733,  
 2737  
 7774, 298  
 7935, 2724, 2728  
 8083, 89, 217, 2631,  
 2636  
 8300, 678, 895, 897,  
 911, 913  
 8406, 2724, 2728  
 8407, 2728  
 8408, 2728  
 8409, 2724, 2728  
 8410, 2725, 2728  
 8757, 1036  
 8759, 948  
 8776, 2251, 2927, 2954,  
 2977  
 8802, 2724, 2725, 2728  
 8803, 2724, 2728  
 8804, 2724, 2728  
 8876, 2550  
 8982, 2724, 2728  
 8983, 2724, 2728  
 8984, 2724, 2728  
 8985, 2724, 2728  
 9043, 2927  
 9184, 2881  
 9240, 2724, 2728  
 9241, 2724, 2728  
 9242, 2724, 2728  
 9243, 2724, 2828  
 9304, 2620  
 9416, 2927  
 9480, 2978  
 9481, 2978  
 9511, 2598  
 9536, 1107, 1382  
 9658, 2652  
 9868, 414, 415  
 9906, 2731, 2732, 2733,  
 2736  
 9992, 2692, 2863  
 9993, 2855, 2921  
 10218, 2671, 2774  
 10351, 1030, 1114  
 10453, 2724

10530, 271, 337	14681, 2697	18917, 2731, 2737
10704, 2724, 2728	14699, 2388, 2417, 2537	19127, 2728
10872, 415, 428	14781, 695, 701, 852	19437, 2808
10896, 2560	14861, 2681	19565, 3058
11042, 2568	14975, 2724, 2728	19631, 2916
11054, 2569	14978, 2728	19734, 227
11164, 3006, 3060	15156, 2724, 2728	20004, 2506
11319, 2724, 2728	15157, 2724, 2728	20053, 681
11325, 2927	15158, 2724, 2728	20214, 2927
11503, 2927	15159, 2725, 2728	20690, 3009, 3053
11505, 2581	15259, 2979	20672, 227
11507, 2724, 2728	15272, 1030	20915, 1116
11605, 2725, 2728	15545, 2601	20933, 2591
11606, 2725, 2728	15800, 2724, 2728	21018, 2911
11607, 2725, 2728	15856, 2728	21109, 2724
11609, 681	16102, 3061	21129, 2728
11656, 2725	16205, 1117	21171, 1832, 2927
11657, 2725	16298, 931, 933	21189, 2927
11695, 1313	16615, 681	21373, 2728
11752, 2724, 2728	16833, 2731, 2733, 2734, 2737	21537, 2749, 2859, 2862, 2909
11753, 2724, 2728	16913, 2681	21650, 958, 959
11754, 2724, 2728	16933, 2591	21828, 881, 885
11755, 2724	17144, 2724, 2728	21986, 1313
11801, 2728	17163, 2731, 2732, 2733, 2736	22005, 2681
11969, 1108, 1151	17181, 2724, 2728	22172, 2728
11995, 1119	17258, 2648, 2763	22308, 2726, 2728
11996, 2764, 2728	17299, 2649	22427, 2562
11997, 3058	17301, 2728	22645, 2927, 2960
12054, 2724	17311, 2579, 2859, 2863	22729, 2728
12183, 2559, 2590	17316, 1448	23386, 2731, 2733, 2734, 2737
12194, 681	17485, 2750, 2878, 2982	23445, 2538, 2540
12358, 2761	17501, 149, 217, 2651	23642, 730
12462, 2724, 2728	17502, 2655, 3067, 3071, 3073	23846, 2927, 2955
12468, 2724, 2728	17507, 923	24136, 2637
12475, 2724, 2728	17609, 681	24146, 3061
12477, 2724, 2728	17653, 178	24232, 2725, 2728
12479, 2724, 2728	17669, 1207	24234, 2883
12480, 2724, 2728	17745, 2766	24256, 1122
12818, 2750, 2895	17746, 2766	24302, 227
12880, 2769	17760, 1356	24525, 2576, 2907, 2916
13093, 2864, 2878	17780, 2732, 2736	24534, 2725, 2727, 2728
13111, 2927	17976, 926	24542, 168, 274, 328, 563
13112, 2613, 2652	18022, 2609, 3077	24546, 2735
13217, 227	18210, 2910, 2917	24633, 2927
13296, 2927	18221, 2724	24812, 2927
13298, 298	18404, 2718	24934, 2927
13348, 2927, 2982	18427, 881, 885	24955, 2336, 2579, 2642, 2663, 2893
13353, 456	18505, 2724, 2728	25025, 2927
13758, 2978	18588, 2724, 2728	25163, 227, 3066
13962, 2643, 2682	18589, 2724, 2728	25242, 681
13982, 227, 3066	18590, 2745, 2909	25243, 2751, 2892
14032, 6000	18684, 2586, 2613, 2693	25362, 2585
14122, 2620	18716, 2728	25540, 2927
14184, 74		25556, 2760
14525, 297, 3065		25799, 838, 843, 1392
14586, 2927		
14690, 2927		
14615, 959		
14675, 227, 3066		

**English**

25821, 3057  
 25939, 2709  
 25942, 2919  
 25950, 2707, 2708  
 26070, 2724  
 26155, 2728  
 26259, 2724, 2728  
 26506, 2601  
 26802, 2927  
 26838, 2700, 2715  
 26916, 1206, 1209, 1211  
 26982, 1732, 2625  
 27041, 2601  
 27217, 2728  
 27786, 2766  
 27821, 2596  
 27898, 2712  
 27989, 2724, 2728  
 28077, 927  
 28236, 2566  
 28245, 2927  
 28284, 2749, 2856  
 28364, 2635  
 28543, 934, 2550  
 28595, 2998  
 28638, 236  
 28750, 2727, 2728  
 28793, 2751, 2859, 2861,  
 2919  
 28799, 808  
**1903**  
 36, 927  
 319, 448  
 450, 2978  
 457, 2927, 2051, 2952  
 519, 1206  
 768, 2980  
 885, 420  
 894, 227  
 1348, 2703  
 1456, 681  
 1678, 3062  
 1755, 1062, 1132, 1299,  
 1303  
 1803, 2737  
 1842, 2702  
 1992, 2732, 2733, 2734,  
 2738  
 2049, 2728  
 2099, 2731, 2735  
 2200, 945  
 2215, 2704  
 2377, 2774  
 2399, 2726, 2728  
 2420, 300  
 2592, 2981  
 2652, 2697  
 2977, 2927

3033, 2591, 2748  
 3045, 2542, 2754, 2755  
 3147, 2765  
 3230, 2734, 2728  
 3485, 2606  
 3557, 2723, 2725  
 3679, 927  
 3765, 2917  
 4183, 2723, 2727, 2728  
 4218, 2416  
 4233, 2560  
 4355, 2405  
 4398, 2727, 2728  
 4440, 2739  
 4448, 927  
 4591, 2726, 2728  
 4863, 2399, 2676, 2753  
 3020, 3030, 3042  
 4902, 2601, 2620  
 5249, 227, 3066  
 5339, 296  
 5370, 2790, 2794  
 5649, 681  
 5791, 2927, 2984  
 5887, 2606, 2673  
 6332, 2728  
 6348, 2728  
 6409, 2079  
 6689, 2927  
 6705, 2726, 2728  
 6706, 2728, 2728  
 6707, 2726, 2728  
 6724, 1075  
 6823, 2769  
 6824, 1107, 1113  
 7023, 3063, 3068  
 7058, 571, 608, 1878  
 7162, 2728  
 7269, 2140, 2927  
 7341, 3024, 3053  
 7521, 2728  
 7615, 2727  
 7695, 2977  
 7712, 2977  
 7833, 2909  
 7872, 228  
 8278, 1978, 2167  
 8357, 2016  
 8498, 2751, 2882  
 8583, 2728  
 8593, 2729  
 8649, 2731, 2732, 2733,  
 2736, 2737  
 8795, 3080  
 8898, 2927  
 8983, 298  
 9017, 2629  
 9106, 431  
 9182, 843

9331, 2726  
 9340, 2532  
 9453, 1107, 1119  
 9493, 1075  
 9683, 227, 3065  
 9729, 2740  
 9849, 232, 3077, 3078,  
 3079  
 10004, 2570  
 10014, 2726, 2728  
 10243, 349, 3011, 3026,  
 3027  
 10247, 2728  
 10255, 227  
 10277, 2892  
 10789, 2927  
 10834, 2997  
 10836, 2927  
 10852, 2596  
 11126, 681  
 11137, 2548  
 11219, 2859, 2862  
 11221, 682  
 11416, 2724  
 11440, 2927  
 11549, 1062  
 11625, 2643  
 11656, 2728  
 11657, 2728  
 11712, 2405, 2610  
 11785, 2728  
 11888, 2705  
 11908, 2731, 2732, 2733,  
 2736  
 11909, 2731, 2732, 2733,  
 2736  
 12059, 2728  
 12419, 1108  
 12584, 2927, 2948  
 12717, 2726, 2728  
 12858, 2728  
 12997, 2892  
 13277, 2728  
 13306, 2394, 2606  
 13368, 2728  
 13454, 1062  
 13457, 1724, 2111, 2251,  
 2252, 2927  
 13531, 1780, 2927, 2962,  
 2983  
 14073, 2748, 2869  
 14112, 947, 948  
 14182, 2518  
 14194, 947, 948  
 14213, 681  
 14278, 2740  
 14303, 681  
 14342, 1303  
 14483, 232, 2493, 2583,

- 14749, 789  
 14758, 2481  
 14764, 2726, 2728  
 14825, 2927, 2957  
 14827, 2927  
 14974, 2563  
 15302, 2737  
 15490, 2733, 2737  
 15606, 2596  
 15766, 2698  
 16000, 2565  
 16128, 2728  
 16283, 2731, 2733, 2734,  
 2737  
 16298, 681  
 16336, 2728  
 16377, 802  
 16446, 2732, 2733, 2734  
 16446, 2732, 2733, 2736  
 16588, 2636  
 16604, 3068, 3068, 3072,  
 3073  
 16605, 2630, 2635  
 16656, 2613, 2687, 2700  
 16684, 2544  
 16800, 2728  
 16982, 2725, 2728  
 17135, 2548, 2591  
 17270, 2601  
 17318, 2723, 2728, 2728  
 17414, 2168  
 17415, 2168  
 17430, 3061  
 17445, 926  
 17451, 2591  
 17827, 2580  
 17890, 2168  
 18251, 2660  
 18266, 2728  
 18300, 2563  
 18385, 2728  
 18594, 896, 943  
 18599, 2576, 2613  
 18675, 2617  
 18770, 2728  
 19163, 2731, 2732, 2733,  
 2735  
 19387, 2623  
 19434, 2909  
 19438, 2927, 2958  
 19499, 429  
 20049, 860  
 20210, 2253, 2927, 2984  
 20223, 2774  
 20488, 2601  
 20497, 702  
 20950, 227, 3065  
 20965, 2927  
 21018, 2747  
 21030, 3068, 3070  
 21103, 2563  
 21365, 2927  
 21481, 2927, 2947  
 21482, 2927, 2947  
 21500, 2741  
 21639, 2916, 2917  
 22299, 2676, 2756  
 22370, 425  
 22451, 2596  
 22542, 422  
 22970, 1779, 1788  
 23002, 2725, 2728  
 23360, 2706, 2711  
 23386, 2738  
 23472, 2927  
 23703, 439  
 23722, 2751  
 23752, 2753  
 23766, 2927  
 24062, 2728  
 24289, 2584, 2643  
 24297, 729, 730  
 24326, 2405  
 24332, 702  
 24382, 2731, 2732, 2733,  
 2737  
 24382A, 2733, 2737  
 24511, 2927  
 24619, 1206, 1209, 1218  
 24629, 2590  
 24637, 3083  
 24639, 700  
 24932, 2698  
 25048, 2916, 2917  
 25075, 294  
 25105, 2907, 2917  
 25388, 947  
 25390, 2859, 2863, 3059  
 26012, 293  
 26035, 2696, 2712  
 26149, 297, 328  
 26150, 297, 328, 1873  
 26360, 2556  
 26456, 2660  
 26738, 2717  
 26785, 2532  
 26978, 2927  
 27202, 2606  
 27545, 2552, 2927, 2956  
 27587, 301  
 27738, 302  
 28152, 2726, 2728  
 28212, 1779, 1786  
 28479, 2714  
 28611, 300  
 28667, 932  
 29688, 681  
 29710, 2927, 2960  
 28784, 2734  
 1904  
 116, 564, 1811, 2013,  
 2246, 2927  
 254, 1211  
 374, 2728  
 564, 2705  
 925, 2749, 2863, 2881  
 1006, 1206, 1282  
 1463, 2728  
 1712, 2728  
 1930, 2601  
 2167, 2617  
 2192, 2624  
 2323, 3079  
 2357, 3070  
 2483, 2741  
 2541, 1206, 1300  
 2655, 1062  
 2739, 74  
 2758, 230  
 3253, 2927  
 3301, 2927  
 3358, 2861, 2867  
 3457, 2677, 2863, 2907  
 3655, 2848  
 3826, 2576, 2701  
 3855, 2859, 2863, 3059  
 4018, 2893  
 4028, 2927, 2957  
 4457, 2685  
 4580, 1046  
 4699, 2927  
 4742, 2927  
 4796, 730  
 4960, 2728  
 4994, 2751, 2884  
 4996, 297  
 5080, 2726  
 5126, 1876, 1882, 2012  
 5280, 2542, 2676, 2755,  
 2895  
 5286, 3067  
 5540, 881, 885  
 5549, 2518  
 5574, 431  
 5688, 865  
 5730, 2635, 3064, 3071  
 5948, 2892  
 6018, 2862, 2918  
 6143, 730  
 6172, 2728  
 6353, 2927, 2957  
 6384, 230, 3060  
 6402, 2771  
 6600, 2594, 2692

## English

6652, 2512, 2528  
 6743, 2742  
 6846, \* 743, 1206, 1229,  
 1288, 1290  
 6898, 789, 1062, 1087  
 7074, 1108  
 7452, 1122  
 7490, 2927  
 7511, 1956  
 7534, 3002  
 7848, 2692, 2698  
 7853, 2850, 2859, 2862  
 8041, 2927  
 8072, 2728  
 8544, 271, 572  
 8545, 271, 572  
 8697, 2728  
 8895, 2760  
 9277, 1784, 2754, 2803  
 9281, 2728  
 9317, 1290  
 9330, 2728  
 9390, 2727, 2729  
 9515, 2908, 2916  
 9591, 2591, 2678  
 9635, 724  
 9703, 701  
 9773, 2728  
 9902, 2576, 2682, 2802,  
 2807  
 10110, 2492, 2578, 2692  
 10142, 2598  
 10538, 709  
 10663, 2168  
 10664, 205  
 10851, 234  
 10881, 1303  
 10898, 2900  
 10951, 2749, 2881  
 11000, 1869, 2927, 2975  
 11240, 2728  
 11244, 2725  
 11437, 1062  
 11896, 474  
 12118, 2715  
 12358, 681  
 12927, 1832, 2927  
 12867, 2863  
 13046, 2705, 2756  
 13118, 2728  
 13153, 2640  
 13485, 2576, 2583, 2638  
 13638, 681  
 13929, 2728  
 13952, 698  
 13993, 2579  
 14372, 1113  
 14413, 681  
 14480, 2927

## INDEX OF PATENTS

•

14701, 2728  
 14955, 2543  
 15053, 2927  
 15269, 2606  
 15435, 2539, 2803  
 15512, 959  
 16187, 1207  
 16245, 301  
 16292, 213, 456, 504  
 16281, 303  
 16353, 1062, 1090  
 16354, 1090  
 16378, 2728  
 16403, 300  
 16536, 2735  
 16632, 2612, 2709  
 16924, 2726, 2728  
 17152, 2635  
 17199, 2899, 2917  
 17208, 2728  
 17232, 2680  
 17242, 2612  
 17414, 2168  
 17435, 2556  
 17555, 2726  
 17610, 2864, 2911  
 17624, 335  
 17794, 1206, 1233  
 17880, 2927  
 17967, 2909  
 17979, 2601  
 18089, 2730  
 18269, 2927, 2952  
 18564, 678  
 18742, 231, 2496, 2612  
 19066, 3061  
 19040, 2880, 2882  
 19978, 2729  
 20003, 869  
 20012, 1206, 1211, 1290  
 20106, 2927  
 20637, 1900, 2626  
 20952, 1152  
 21210, 2876, 2881  
 21535, 2585  
 21869, 234  
 21988, 89  
 22245, 2692, 2719  
 22381, 1786, 2406  
 22675, 2704  
 22988, 2878, 2879  
 23361, 2644, 2648  
 23366, 2927  
 23619, 2720, 2755  
 23909, 730  
 23973, 2927  
 24083, 3006, 3028  
 24136, 1075  
 24246, 2745, 2898, 2908,  
 2916  
 24618, 2742, 2908, 2912  
 24774, 2892  
 24782, 1704, 1785, 2927,  
 2956, 2984  
 24846, 2730  
 24880, 2732, 2737  
 25010, 693  
 25296, 2648  
 25797, 2927  
 26072, 2693, 2702  
 26146, 2927  
 26278, 1356, 1369  
 26383, 3062  
 26602, 855  
 26779, 2525, 2527  
 26831, 2728  
 26881, 789  
 27005, 2927  
 27090, 2764  
 27162, 2031, 2047, 2927  
 27166, 2927  
 27357, 2742  
 27459, 2927  
 27460, 2927  
 27565, 2623, 2643  
 27706, 2927  
 27756, 2693, 2718  
 27907, 1113  
 28035, 2527  
 28143, 2610, 2620  
 28250, 2927  
 28376, 2927, 2954, 2978,  
 2980  
 28434, 2700  
 28613, 869  
 28614, 869, 893, 924  
 28712, 102  
 28733, 3053  
 28784, 2732, 2733  
 28808, 2927  
 29056, 2927  
 29303, 2705  
 29396, 2728  
 29475, 681  
 1905  
 108, 2174, 2978  
 425, 455  
 505, 300  
 639, 2859, 2897, 2903,  
 2918  
 1048, 458  
 1283, 90  
 1294, 90, 2644  
 1296, 2729, 2919  
 1416, 1427  
 1437, 2702, 2741  
 1501, 83,

- 1595, 2554  
1651, 430  
1686, 2625, 2636  
1689, 2625  
1745, 90  
1851, 2600, 2685, 2712  
2129, 2727, 2728  
2192, 1732  
2441, 2611  
2455, 2611, 2624, 2765  
2611, 2614, 2711  
2774, 295  
2861, 1062, 1082  
2880, 3059, 3082  
2895, 2600, 2701, 2745  
2903, 230, 3000  
3345, 2729  
3412, 2727, 2728  
3525, 869  
3725, 2174  
3763, 2600, 2717  
3789, 2927  
4057, 2927  
4353, 703, 830, 985  
4372, 2927  
4377, 2722, 2729  
4419, 2660  
4534, 2554, 2623, 2630  
4680, 2731, 2732, 2733,  
2735, 2736  
4746, 83  
4755, 82, 83  
4756, 82  
4761, 82  
4765, 83  
4968, 2927  
5130, 1780, 2019  
5198, 2917  
5214, 3077, 3078  
5225, 453  
5277, 2704  
5547, 2728  
5687, 2927, 2967  
5796, 2560, 2635, 3074  
5985, 2927  
6045, 2927, 2957  
6075, 2554  
6265, 704  
6334, 2707  
6356, 82  
6357, 83, 2633  
6361, 2927, 2962, 2954  
6405, 2769  
6451, 2927  
6724, 2771  
6751, 3017, 3046  
6764, 2660  
6783, 2556, 2623, 2630,  
2635  
6931, 972  
7292, 2729  
7543, 2732, 2736  
7616, 1031  
7705, 424, 445  
7766, 2615, 2855, 2918  
7915, 1070  
7916, 1341  
7993, 2735  
8206, 298  
8297, 2528, 2532  
8476, 2476  
8530, 1031  
8617, 2568  
8628, 2727, 2729  
8721, 730  
8746, 2927, 2948  
8875, 2777, 2779  
8895, 2561  
8896, 2705  
8960, 610  
8986, 2728  
9008, 2526, 2533  
9104, 2728  
9242, 2579, 2660  
9321, 2669, 2677, 2685  
9441, 2554  
9522, 928  
9550, 2528  
9864, 2595  
9998, 3009  
10319, 2756  
10372, 2755, 2895  
10435, 2461  
10568, 2695, 2717  
10654, 2703, 2743  
10758, 2533  
10758A, 2533  
10758B, 2533  
10787, 2705  
10859, 2727, 2728  
11300, 1062  
11519, 2533, 2895  
11818, 234  
11926, 2687, 2742  
11986, 1062  
12105, 2766  
12203, 2739  
12277, 2894, 3026, 3027,  
3039, 3043, 3051  
12278, 2894, 3026, 3027,  
3039, 3043, 3051  
12460, 2592, 2904  
12635, 2953  
12867, 2745  
12892, 2967, 2978  
12986, 1087  
13001, 2705  
13180, 2599  
13188, 2660, 2694, 2717  
13297, 78  
13340, 2927  
13383, 2598  
13475, 2600, 2919  
13601, 2557  
13602, 2557  
13603, 2557, 2927  
13689, 850  
13989, 959  
14092, 960  
14291, 2742  
14316, 2417  
14409, 1062  
14410, 2906  
14545, 2927  
14955, 855  
14958, 2927  
15029, 2623, 2643  
15053, 2944  
15372, 2554, 2623  
15517, 2751, 2771  
15564, 1704, 2927, 2958,  
2967  
15565, 1704, 2927, 2952,  
2967  
15566, 1704, 2927, 2946,  
2967, 2983  
15632, 2726, 2728  
15912, 2576, 2584  
16129, 2732, 2733, 2738  
16514, 2927  
16583, 3068  
16589, 474  
16929, 1341  
16930, 1341  
16931, 1062, 1344  
16999, 2895  
17132, 2724, 2726, 2728  
17132A, 2726, 2728  
17164, 72  
17381, 72  
17186, 2728  
17381, 2631  
17457, 1072  
17741, 2927  
17842, 2659  
17886, 1341  
17887, 1341  
17946, 681  
18275, 2927  
18318, 2732, 2736  
18383, 2593  
18608, 2728  
18692, 2927, 2961  
18695, 2728  
18989, 2728  
19035, 2492, 2700  
19112, 2927

## English

19157, 2629  
 19189, 678, 730, 900,  
 942  
 19202, 2878  
 19250, 299  
 19303, 3013  
 19330, 2398, 2543, 3007,  
 3012, 3029  
 19402, 2927  
 19644, 2704  
 19808, 295  
 19839, 1062  
 19986, 834, 986, 991,  
 998  
 20143, 78, 320  
 20285, 2717  
 20310, 2927  
 20905, 2728  
 21125, 2610  
 21160, 1072  
 21347, 957  
 21505, 328, 1873  
 21529, 1785, 2927, 2960  
 21595, 2728  
 21762, 1072  
 21779, 2927, 2944  
 21913, 2859, 2863  
 22080, 1090, 1206, 1218,  
 1290  
 22225, 681, 944  
 22525, 2760, 3082  
 22709, 303  
 22718, 301  
 22725, 2752, 2881  
 22735, 2848, 2850  
 23252, 2728  
 23815, 2860, 2907  
 23841, 1372  
 23920, 1967  
 23990, 2909  
 24002, 2927, 2983  
 24117, 2732, 2738  
 24238, 1062  
 25081, 2492, 2927, 2952,  
 2954  
 25371, 1062  
 25607, 2728  
 25646, 2704  
 25658, 2728  
 25780, 2927  
 25781, 2927  
 25939, 2927, 2943  
 26201, 2390, 2582, 2616  
 26517, 2601  
 26715, 2747, 2910  
 26728, 693, 850  
 26743, 2728  
 26803, 922  
 26893, 2599, 2694

26965, 2910  
 27047, 2710, 2711  
 27222, 88, 2630

## 1906

1182, 3070  
 1204, 678, 900, 943,  
 1203  
 1454, 2755  
 1474, 2550  
 1497, 2731, 2735  
 1573, 2927  
 1879, 2724  
 1938, 2878  
 1939, 3055  
 1984, 2728  
 2066, 2660  
 2156, 3058, 3079  
 2242, 451  
 2255, 2717  
 2520, 2515, 2532  
 2682, 2778  
 2817, 2539, 2544  
 2902, 2005, 2017  
 2906, 2625, 2635  
 2985, 2927  
 3005, 2927  
 3013, 2610  
 3025, 2365  
 3211, 571, 567, 1878  
 3413, 2567  
 3449, 1826  
 3450, 1827, 2623  
 3549, 83  
 3560, 83  
 3583, 703, 720  
 3661, 2555  
 3680, 986, 989, 1000,  
 1355  
 3776, 2707  
 3822, 2859, 2863  
 3889, 2462  
 3917, 2708, 2710  
 3994, 681, 1062  
 4083, 1355  
 4114, 1869, 2927, 2975  
 4115, 1754, 1825, 2927  
 4274, 2407, 2419  
 4409, 681  
 4569, 2761  
 4577, 2031, 2616  
 4597, 232, 2493, 2613,  
 3035, 3054, 3071  
 4957, 3057  
 5020, 2743  
 5032, 2527, 2530  
 5072, 2552, 2702  
 5109, 2859, 2860, 2862,  
 2918  
 5151, 1341  
 5169, 2779  
 5219, 301  
 5259, 2927  
 5342, 300  
 5525, 2712  
 5665, 2927  
 5852, 693  
 5879, 2733, 2737  
 5901, 693, 702, 730  
 6072, 72  
 6166, 1899, 2624, 2627  
 6183, 2391, 2766  
 6206, 2638, 2649, 2650  
 6220, 2731, 2732, 2733,  
 2736, 2737  
 6314, 2927  
 6590, 95, 1888  
 6606, 2527  
 6613, 2731, 2722, 2737  
 6640, 2463, 2478  
 6705, 2927  
 6814, 2596  
 6924, 2650  
 6942, 102, 110, 2634  
 6992, 234  
 7297, 2406  
 7520, 2634, 2651  
 7829, 704  
 7861, 2729  
 7869, 881, 885  
 7870, 881  
 7871, 881, 891  
 7934, 2569  
 8011, 2733, 2738  
 8045, 3069  
 8077, 2545, 3040  
 8167, 1784, 2777  
 8260, 2519, 2529  
 8266, 2526, 2527  
 8356, 2529  
 8356A, 2519  
 8452, 881  
 8604, 1881  
 8757, 2395, 2396  
 8910, 86  
 9008, 3005  
 9254, 89  
 9279, 855  
 9299, 2728  
 9799, 2390, 2651, 2927,  
 2954, 2961  
 9939, 1081  
 10051, 2856  
 10094, 92, 2640, 3067  
 3069  
 10182, 569  
 10183, 569  
 10216, 431

10228A, 2544	16271, 2539, 2544, 2545	20638, 2063
10308, 1087	16364, 78	20834, 2876
10407, 2530, 2532	16429, 2527, 2528, 2529,	20889, 2927
10424, 2927	2533	20901, 2720
10463, 2728	16442, 86	20919, 2727
10581, 681	16510, 281	21144, 72, 2623
10779, 2728	16519, 2660	21171, 2528
10798, 2526, 2527	16568, 2620	21180, 2528, 2533
10814, 1218	16676, 1991	21189, 2888, 2899
10827, 2253, 2927, 2946	16725, 2552, 2927	21240, 2927, 2962
10999, 2532	16809, 2977	21338, 696
11033, 2883, 2888, 2899	16882, 2927, 2955, 2966	21493, 2552
11103, 296	16910, 1342	21567, 2420
11133, 1030	16912, 1062	21584, 2900
11169, 2708	16999, 2704	21640, 2726, 2728
11346, 2863	17414, 2927	21672, 1062
11574, 2526	17461, 1090	21698, 2849, 2861
12016, 2709, 2711	17573, 2532, 2533	21973, 425
12073, 2726, 2728	17667, 2709	22038, 3004
12272, 2728	17767, 2732, 2733, 2734,	22166, 1062
12291, 480	2737	22196, 2876
12401, 693	17773, 2518, 2921	22397, 2705
12502, 1356	17832, 1280	22422, 2655
12538, 1372	17891, 2927, 2962	22659, 2705, 2710
12596, 2643	18057, 2731, 2732, 2733,	22783, 2220
12630, 2532	2736	22810, 2524, 2533, 2539
12639, 2532	18280, 2526, 2527	22887, 313
12716, 2927	18435, 882	23130, 1341
12718, 571, 579, 1878,	18499, 2606	23683, 2637, 2643
2927	18599, 882, 884	23875, 2527
12842, 72, 2631, 2640	18600, 882, 885	23875A, 2527
12920, 572, 1878, 2927	18603, 882, 985, 993	23957, 1032
13005, 2587	18741, 2882	24035, 458
13088, 2728	18853, 2723	24067, 2398, 3007, 3020,
13181, 2596	18927, 1206, 1236	3053
13428, 2734, 2736	19001, 1280	24096, 1078
13718, 2728	19107, 2541, 2753, 2927,	24229, 2416
13960, 2977	3020	24240, 2927, 2945
13965, 848	19130, 1062	24279, 2564
13983, 2927	19215, 2927	24587, 2582
14067, 2625, 2636, 2651	19408, 1785, 2927, 2956,	24720, 2728
14205A, 454	2983	24826, 1062
14243, 2756	19562, 2731, 2737	24830, 2532
14255, 3011, 3018	19652, 2877	25081, 2944
14259, 720	19870, 928	25150, 2740
14284, 2728	19956, 2733, 2735	25188, 2894
14438, 3003	19960, 2529, 2530, 2532	25349, 2728
14482, 2703, 2707	19961, 2530, 2532	25435, 837
14610, 2613, 2643	19973, 1086	25445, 227, 234, 3050
15123, 89	19981, 2728	25574, 1062, 1081
15445, 667	20005, 301	25905, 469
15486, 2688, 2776	20037, 2552	25905, 681
15907, 2721	20309, 6927	25947, 234, 2625, 2639,
16045, 2742	20404, 2660	2649
16060, 2726, 2728	20408, 89, 2623, 2653	25976, 1030
16063, 1300	20488, 429	26188, 2609, 2620
16078, 2636	20519, 226, 3066	26501, 3012
16082, 2603	20526, 2524	26502, 3009, 3037, 3053,
16088, 89	20648, 2765	3057



**English**

26503, 2999, 3059  
 27006, 722  
 27061, 1072  
 27092, 2392, 2565  
 27120, 78  
 27438, 3066  
 27527, 1732, 2623, 2624  
 27727, 72, 2631  
 27826, 693  
 27952, 2731, 2733, 2736  
 27953, 2731, 2733, 2734,  
 2736  
 27954, 2731, 2733, 2734,  
 2736  
 28053, 2927, 2978  
 28085, 2728  
 28147, 2444  
 28319, 2909  
 28375, 3005  
 28424, 2728  
 28425, 2728  
 28449, 985, 993  
 28501, 2391  
 28698, 2560, 2561  
 29052, 2613  
 29054, 2644, 2652  
 29052, 2690  
 29093, 2769  
 29289, 2927

**1907**

58, 2878, 2910  
 89, 2624, 2634, 2635  
 89A, 2624, 2634,  
 2635  
 91, 1357, 1380  
 194, 2878  
 233, 2645, 2651  
 495, 2878  
 530, 1295, 1299  
 592, 232, 2493, 2538,  
 2583, 2613, 2637,  
 3035, 3054  
 703, 1295  
 791, 1785, 2927, 2952,  
 2956, 2983, 2984  
 845, 2728  
 852, 2728  
 974, 1062, 1342  
 993, 2823  
 1130, 2728  
 1310, 2728  
 1359, 2916, 2917  
 1395, 998  
 1454, 2895  
 1784, 2927  
 1844, 790, 800, 1300  
 1851, 2708  
 1898, 2396

1948, 2530  
 2026, 2650, 3009, 3053  
 2026A, 3010, 3018  
 2026B, 3011, 3018,  
 3037  
 2133, 927  
 2286, 2927, 2947  
 2356, 2918  
 2407, 932  
 2461, 2884, 3059  
 2511, 150, 2999  
 2458, 2728  
 2461, 2751  
 2511, 3015, 3016, 3018,  
 3031  
 2641, 2728  
 2789, 1062, 1292  
 2876, 3067  
 2994, 1278  
 2998, 2583, 3077  
 3103, 149, 3012, 3018,  
 3019  
 3176, 2519  
 3179, 2927, 2945  
 3199, 2927  
 3435, 1062, 1342  
 3559, 2728  
 3577, 2728  
 3606, 2633, 2634, 2655,  
 3073  
 3641, 2728  
 3645, 1888, 2020, 2541  
 3710, 2708  
 3789, 2776  
 4015, 2633, 2634, 2650  
 4063, 996  
 4251, 234, 3066  
 4254, 818, 986  
 4361, 2864, 2917  
 4363, 2771  
 4366, 1280  
 4407, 1280  
 4439, 2927, 2957  
 4528, 228, 230, 3066  
 4589, 2560  
 4832, 948  
 4861, 1206, 1210, 1212,  
 1246  
 5016, 3056  
 5019, 2554  
 5020, 2554, 2649  
 5128, 205  
 5238, 2568, 2760  
 5314, 925, 928  
 5412, 2859  
 5413, 2612, 2860, 2893  
 5429, 2519, 2533  
 5692, 2883, 2911  
 5881, 2636, 3067  
 5891, 1779  
 6089, 2729  
 6093, 2910  
 6098, 2879  
 6155, 696  
 6216, 2609  
 6366, 696  
 6566, 2728  
 6592, 2610  
 6717, 2492, 2493  
 6831, 2500  
 6872, 2728  
 6928, 2728  
 7116, 1218  
 7132, 2891  
 7217, 2882, 2884  
 7296, 2728  
 7320, 882  
 7442, 2586, 2703  
 7491, 2610, 2696  
 7690, 2636  
 7709, 2560  
 7837, 2927  
 7839, 1874, 2927  
 8156, 2927, 2982  
 8157, 2927, 2982, 2983  
 8164, 1030  
 8179, 3067  
 8317, 1270  
 8369, 3099  
 8381, 3078  
 8608, 2581, 2613, 2707  
 8653, 693  
 8840, 2731, 2732, 2733,  
 2735, 2737  
 9170, 2927  
 9357, 3041  
 9537, 2543, 3029  
 9568, 2756  
 9826, 2713  
 9857, 2530, 2532, 2533  
 9931, 452  
 9939, 704  
 9941, 2558  
 10051, 1276  
 10164, 87  
 10165, 87  
 10288, 2703, 2741  
 10510, 2927  
 10526, 2927  
 10545, 84  
 10729, 293  
 10785, 2523, 2524, 2529,  
 2530  
 10784, 2524, 2530  
 10951, 2746, 2747  
 11089, 456  
 11159, 456  
 11187, 1031

- 11338, 1132, 1200  
 11369, 2927, 2977  
 11397, 2030, 2700  
 11559, 1206, 1265  
 11801, 425  
 11928, 2582, 2616, 2624  
 12213, 1062  
 12312, 1091  
 12378, 2173  
 12556, 2403, 2617  
 12591, 1081  
 12592, 1081  
 13023, 2518, 2921  
 13508, 2395, 2396  
 13516, 2703  
 13518, 2613, 2634, 2650  
 13868, 2630  
 13898, 700  
 13953, 3005  
 13954, 895, 603, 943  
 13989, 693  
 14071, 2731, 2733, 2738  
 14073, 2731, 2733, 2738  
 14098, 2759  
 14098A, 2732, 2733,  
 2736  
 14185, 2587, 2694  
 14379, 2519  
 14549, 2531  
 14550, 2531, 2533  
 14655, 2635, 2654  
 14671, 2493  
 14756, 1300  
 14858, 2910  
 15171, 2598  
 15249, 2918  
 15253, 2607  
 15352, 3067  
 15389, 2712  
 15406, 1223, 1268  
 15536, 2566  
 15673, 2724  
 15700, 454  
 15792, 2609  
 15794, 2604  
 15837, 3065  
 15849, 2703, 2712  
 15902, 2894  
 15941, 1071  
 16006, 2728  
 16067, 699  
 16068, 699  
 16150, 2464  
 16162, 729  
 16245, 2768  
 16492, 2253, 2927  
 16495, 90, 2660  
 16512, 88, 2623  
 16532, 2519  
 16605, 2527, 2530  
 16885, 899, 895  
 17125, 1062  
 17168, 2731, 2732, 2733,  
 2734, 2736  
 17460, 1898, 2623, 2629  
 17560, 2728  
 17780, 2556  
 17841, 2418  
 17876, 2562, 2636  
 17877, 2927, 2978  
 17953, 2761, 2763  
 18250, 2732, 2733, 2736  
 18164, 2655  
 18312, 3067, 3072  
 18341, 125, 201, 2420  
 18416, 2577, 2694  
 18900, 882  
 18901, 882  
 18936, 86, 90  
 18947, 2587, 2620  
 19565A, 1871, 2927  
 19721, 2910  
 19889, 2863, 2909  
 19973, 1062  
 19993, 1871, 2927  
 20125, 2998  
 20223, 2594  
 20267, 297  
 20384, 2880  
 20509, 1341, 1345  
 20697, 704, 848  
 20892, 2728  
 20931, 2927  
 21087, 2731, 2735  
 21116, 2927  
 21117, 2927  
 21147, 1111, 1123, 1124,  
 1396  
 21209, 2911, 2918, 2920  
 21318, 2703, 2744  
 21340, 2728  
 21346, 1223  
 21360, 2927  
 21404, 2716  
 21405, 3067, 3069, 3071  
 21475, 702, 1303  
 21500, 2720  
 21786, 925  
 21789, 2736  
 21799, 2736  
 21890, 2671, 2694, 2727,  
 2751  
 21946, 2512, 2526, 2527,  
 2531  
 22092, 90, 91  
 22095, 1152  
 22129, 2532  
 22201, 699  
 22244, 2919  
 22371, 3080  
 22379, 2728  
 22528, 2670, 2694, 2756  
 22753, 79, 2647, 2649  
 23112, 2979  
 23615, 2876, 2881  
 23819, 2927, 2982  
 23852, 2714, 2715, 2721  
 23888, 2658  
 23901, 1062  
 24024, 2591  
 24025, 1790, 2927, 2984  
 24214, 2577, 2749, 2750,  
 2906  
 24284, 3038, 3055  
 24327, 2984  
 24503, 296  
 24806, 2523  
 24861, 927  
 25165, 2894, 2898  
 25216, 2772  
 25217, 2736, 2772  
 25274, 415  
 25446, 2698, 2699  
 25453, 2523, 2529  
 25632, 869, 879, 987  
 25657, 2596  
 26052, 1062  
 26261, 2927  
 26263, 2999  
 26317, 2960, 2700  
 26791, 2927  
 26823, 2927  
 26915, 2419, 2598  
 26981, 699, 703  
 27017, 1062  
 27019, 1062  
 27020, 1062  
 27329, 2616  
 27426, 1075  
 27496, 1267  
 27693, 231  
 27707, 74, 90, 2660  
 27738, 1218, 1222, 1223,  
 1265, 1283, 1291  
 27751, 2707, 2708  
 27799, 703, 849  
 27927, 2526, 2531  
 27948, 302  
 28009, 2773  
 28028, 2522  
 28036, 2523  
 28109, 2772  
 28280, 1031  
 28415, 2577, 2910  
 28614, 2879  
 28723, 2391

**English**28743, 2806, 2620  
28766, 2615, 2687, 2918**1908**

117, 2579, 2982  
261, 2728  
272, 730  
273, 800, 1062  
342, 1871  
348, 2418  
351, 2927, 2946, 2953  
413, 2519  
701, 1062  
858, 102  
1265, 87, 2631, 2653  
1330, 2774  
1351, 425  
1372, 2880  
1630, 1046, 1062, 1074,  
1075  
1677, 2927, 2945  
1682, 2528  
1689, 2894, 2898, 2915  
1695, 1062  
1761, 1062  
1819, 2927  
1841, 929  
1921, 2768  
1922, 2768  
1936, 2525  
2122, 2770, 2779  
2213, 2878  
2240, 2596  
2382, 986, 1348, 1423,  
1426, 1518  
2414, 855, 896, 1062  
2509, 2927  
2719, 1030  
2794, 2655  
2829, 2728  
2971, 1062  
3055, 2596  
3187, 2728  
3221, 2927  
3252, 2876  
3428, 3003  
3750, 2522, 2531  
5816, 2728  
4046, 2927  
4128, 2956, 2976  
4359, 2535  
4390, 1781, 2493, 2676  
4468, 2927  
4471, 3005  
4719, 432  
4729, 2703, 2705  
4956, 391, 2645, 3076  
5223, 1303  
5279, 2709

5416, 2598  
5513, 2526, 2531  
5595, 3067, 3069, 3071  
5641, 2881, 2894  
5674, 2529  
6142, 2719, 2766  
6155, 678, 709  
6265, 869, 990  
6366, 1001  
6573, 2764  
6766, 2655  
7126, 2655  
7196, 2728  
7269, 2878  
7306, 2749  
7319, 2517  
7425, 2708  
7429, 1062  
7430, 1779, 2257  
7580, 2606, 2620  
7587, 2708  
7629, 2681, 2750  
7690, 3067, 3078  
7739, 2880  
7806, 2894  
7909, 897, 911, 913  
7921, 2927  
7972, 232  
8012, 3003  
8023, 3074  
8102, 1111, 1119, 1120  
8113, 2728  
8167, 2767  
8268, 327  
8358, 2927  
8426, 684, 697  
8542, 1790, 2755, 2893  
8557, 2911  
8708, 92, 3064, 3071,  
3077  
8711, 2628, 2630, 2639  
8727, 3009  
8742, 3070  
8768, 704, 916  
9044, 2880  
9068, 2728  
9233, 697, 719  
9253, 74, 2625  
9268, 90, 91  
9313, 2550, 2715  
9499, 2724  
9572, 2389, 2537, 2927  
9579, 295  
9693, 2880  
9982, 1780, 1950  
10043, 2567  
10044, 2568  
10066, 2728  
10129, 1785, 1930, 2927  
10233, 2596  
10867, 855  
11166, 2770  
11248, 2526  
11341, 2893, 2902  
11415, 670  
11611, 2640  
11709, 2916  
11732, 1206, 1236  
11959, 88, 2638, 2646  
2649  
12098, 2702  
12168, 2564  
12174, 2607  
12188, 2927, 2984  
12253, 2631, 2653  
12317, 1062  
12549, 2733, 2737  
12576, 2739  
12720, 917  
13020, 2603  
13221, 2586  
13516, 2618, 2620  
13663, 2893  
13793, 2919  
13953, 3005  
14062, 2593, 2726  
14143, 75, 86, 2648  
14408, 2528  
14549, 2533  
14691, 2708  
14707, 1062, 1300  
14752, 2525, 2526  
15015, 88, 2625, 2635  
15195, 2927  
15204, 2704  
15448, 2628, 2630, 2640  
15449, 2628, 2630, 2640  
15486, 2689, 2750  
15490, 878, 901  
15916, 2927  
16042, 2728  
16114, 2891  
16115, 2891, 2899  
16162, 730  
16199, 2728  
16528, 2776  
16557, 2629  
16558, 2629  
16599, 2927, 2966  
16609, 1086  
16737, 2591  
16885, 730  
16925, 2727, 2728  
16963, 681, 685  
17065, 2879, 2894, 2911  
17156, 2561  
17220, 2492, 2772  
17243, 2582, 2613

17309, 2876	21959, 720	599, 1031
17432, 2750, 2906	22122, 2774, 2777	605, 701
17433, 2906	22166, 1076	632, 2703, 2741
17434, 2906	22236, 2598, 2670, 2700	1148, 74, 76, 92
17520, 1088, 1111, 1123, 1302	22267, 2724, 2728	1407, 88, 90, 2630, 2633, 2643, 2644, 2650, 3073, 3074
17767, 2927	22434, 1295, 1303, 1346	1532, 2525
17887, 425	22555, 1818, 1825, 2254, 2927	1550, 2556
17888, 425	23192, 508, 1875, 2927	1715, 2544, 2596, 2616, 2692, 2894, 2919
17956, 292, 313	23273, 2876	2192, 1108, 1119, 1295
17957, 313	23385, 882, 891, 993	2400, 2554, 2629
17958, 313	23497, 1062	2525, 856
17967, 2631, 2655	23806, 2419	2914, 2766
18047, 2530, 2533	23947, 296	3061, 1030
18049, 2533	24110, 2646, 2764	3099, 2909
18129, 1281	24131, 297	3937, 2927, 2907
18208, 2728	24264, 693, 730	3939, 704
18325, 2687	24627, 2586	4094, 1921
18493, 78, 2093	24696, 2026	4104, 83, 87, 2631
18744, 2876	24806, 2709	4130, 2604
18750, 2876	24809, 2893, 3082	4145, 3027
18831, 1280	24811, 2893, 3082	4154, 2593, 2770, 3021, 3035, 3038, 3043
19053, 2714	24922, 2629	4321, 2183, 2537
19157, 2636, 3072	25097, 2629	4537, 2686
19158, 2636, 3072	25276, 2698	4553, 927
19263, 2660	25318, 2774	4592, 2565
19276, 2629	25430, 3000	4683, 228, 3066
19334, 2927	25433, 3000	4872, 74
19369, 1299	25535, 681, 684, 689, 1062	4953, 2732, 2733, 2738
19402, 681, 686, 690	25726, 2709	5206, 305, 2561
19668, 1271, 1273	26033, 2709	5395, 2550, 2650
19726, 456	26152, 1062	5790, 2419
19735, 3025, 3030, 3033, 3043	26155, 2646, 3081, 3082	6415, 1369
19833, 2569	26388, 2728	6429, 882
19920, 2728	26469, 2577	6461, 1086, 1088
20050, 2526, 2531	26573, 301	6554, 3017, 3031
20171, 1225, 1299	26577, 958	6793, 2910
20214, 2927	26593, 2601	7068, 2820
20279, 2927	26610, 2704	7302, 2654, 3081
20316, 88	26619, 206	7307, 681
20366, 814, 985	26682, 2682, 2683	7315, 2525, 2526
20406, 693, 698, 855	26738, 2525	7322, 2518, 2531
20484, 391, 428	27024, 2569	7421, 2909
20548, 2647	27096, 2659, 2773	7507, 919, 920
20574, 2927	27201, 1784, 3042	7617, 87, 2631
20909, 2876	27382, 2736	7673, 2631
20971, 2876	27473, 882	7743, 3048, 3055
21007, 2803	27970, 2740	8022, 2577, 2688
21191, 77, 86, 2644	28012, 2927	8175, 660, 3072
21255, 1063	28163, 299	8176, 78
21285, 79, 2630	28538, 2629, 2634, 2650, 2899	8184, 269, 660, 2762
21566, 2768	28544, 2927, 2955, 2985	8201, 2764
21593, 2582		8325, 269, 2762
21759, 1062		8443, 882
21825, 2703, 2708		8447, 474
21839, 2751, 2790		8609, 2556
21840, 2682, 2880		
21872, 2630, 2646		

1999

52, 1206, 1227, 1335
169, 2646, 2760
412, 2759, 2771

## •English

- 8945, 3029, 3034, 3042,  
     3051  
 9093, 2728  
 9145, 1062, 1086, 1092  
 9240, 2599, 3076  
 9340, 2762  
 9370, 429  
 9394, 959  
 9918, 1080  
 9992, 2927  
 10064, 2697  
 10164, 730  
 10171, 1424  
 10465, 856  
 10578, 3057  
 10591, 986, 990, 1375,  
     1388  
 10592, 985, 990  
 10604, 285, 2624  
 10611, 2876, 2881  
 10755, 693, 939  
 10774, 1069  
 10795, 2556, 2607  
 10867, 729, 850  
 11015, 2731, 2737  
 11123, 1209  
 11128, 1206, 1212  
 11147, 2876  
 11166, 2591, 3045  
 11179, 2927  
 11274, 730, 856, 924  
 11340, 1876, 2603, 2692  
 11354, 232, 2538, 3032,  
     3033, 3034, 3035,  
     3036, 3037, 3038,  
     3040, 3053  
 11625, 2624, 3020, 3030,  
     3051, 3056  
 11700, 83, 2631  
 11905, 2766  
 12001, 809  
 12506, 2927  
 12629, 2859, 2918  
 12687, 2602, 3078, 3079  
 12976, 3042  
 13064, 2735  
 13081, 1062  
 13238, 2911  
 13281, 1062  
 13328, 2893, 2898, 3075  
 13601, 2703  
 13611, 2707  
 13625, 1073, 1079  
 13666, 2911  
 13679, 2555  
 13720, 1385  
 13802, 2524  
 13825, 2524  
 13937, 2995  
 14016, 2717  
 14039, 2750, 2894, 2920  
 14062, 2700  
 14112, 83, 87, 2631  
 14243, 2882  
 14300, 1385  
 14407, 2750, 3051  
 14408, 2894  
 14743, 2920  
 14759, 2640  
 14760, 2640  
 14824, 2894  
 14880, 2577, 2579  
 14950, 2750, 2894  
 14959, 2652  
 15190, 2893, 2898, 3075  
 15269, 295  
 15281, 2893, 2898, 3075,  
     3078  
 15306, 3068, 3077, 3078  
 15841, 2692, 2894, 2904,  
     2908  
 15855, 2548  
 15905, 919, 920  
 15906, 919, 920  
 15997, 919, 920  
 16010, 2682, 2683  
 16030, 2728  
 16199, 2613, 2692, 3058  
 16224, 695  
 16225, 696  
 16313, 2879, 2888  
 16617, 1790, 2927  
 17009, 2673, 2892, 2897  
 17036, 149, 150, 3015,  
     3016  
 17125, 2556  
 17342, 927  
 17348, 1069  
 17449, 2613, 3057  
 17642, 856  
 17827, 2738, 2757  
 17928, 2445  
 17951, 856  
 17960, 681  
 18028, 2418  
 18086, 2633  
 18087, 2633  
 18108, 1069  
 18193, 232, 2538, 2660,  
     3032, 3033, 3034,  
     3035, 3036, 3037,  
     3038, 3040, 3053  
 18203, 693, 698  
 18279, 2390, 2927, 2961  
 18280, 1460  
 18338, 2911  
 18342, 71, 89, 92,  
     2650  
 18551, 2927  
 18553, 2878  
 18590, 2701  
 18605, 2556  
 18622, 2927  
 18694, 2752, 2765  
 19016, 2777  
 19028, 2894  
 19087, 2542  
 19116, 308  
 19150, 302  
 19257, 2419  
 19391, 469  
 19395, 2927  
 19466, 882  
 19691, 2560  
 19692, 2560  
 19772, 2407, 2586, 2616,  
     2863  
 19776, 1062  
 19777, 2775  
 19922, 2927  
 20129, 856  
 20305, 2554  
 20394, 2743  
 20401, 1224, 1290  
 20494, 1063, 1087  
 20502, 856  
 20504, 1062  
 20593, 3064  
 20631, 681  
 20644, 232  
 20728, 2581, 2638  
 20893, 3063  
 20911, 298  
 20965, 2895  
 20976, 3035  
 21069, 2894, 2898, 2920  
 21467, 2894  
 21503, 2556  
 21537, 2728  
 21952, 3065  
 22037, 701, 882, 986  
 22095, 2927  
 22111, 568  
 22413, 77, 86, 90  
 22420, 2589  
 22474, 2740  
 22490, 2758  
 22615, 2556  
 22655, 456  
 22672, 1062, 1090, 1203  
 22715, 856  
 22419, 1107, 1152  
 23442, 1219, 1221, 1224  
 23547, 2578, 2613, 2623  
 23625, 270, 272, 344  
 23632, 2764  
 23976, 675, 693

24000, 2583, 2614, 2694  
24111, 2701  
24266, 2027  
24266, 2389  
24555, 2895  
24556, 2749, 2898  
24589, 205  
24693, 2731, 2734, 2735  
24723, 2731, 2734, 2735  
25027, 1219, 1222, 1280  
25121, 430  
25145, 2638  
25342, 2732, 2735  
25361, 2732, 2735  
25533, 2027  
25808, 681  
26148, 2728  
26239, 2927, 2959  
26317, 3065  
26359, 2927, 2947  
26452, 1206, 1213  
26657, 1779, 1786, 2753,  
3008, 3012, 3013,  
3026, 3029  
26762, 295  
26911, 2877, 2878  
27102, 3009  
27254, 2742  
27266, 2671  
27713, 2419  
27818, 2883  
27826, 700  
27908, 2485  
27950, 304  
28256, 2630, 2631, 2649  
28293, 3061  
28393, 2628  
28440, 298  
28598, 2760, 2765  
28611, 1074  
28755, 1072  
28929, 2927  
29118, 271  
29273, 2879  
29385, 2631  
29879, 2554  
29882, 2054, 2056  
29991, 271  
30196, 1291, 1341  
30380, 856  
30390, 425, 441  
30498, 2741  
30502, 697, 856, 908  
30503, 697, 698, 856  
30505, 2640  
30510, 2624, 2630  
30548, 3081  
30602, 2693, 2701

1910

228, 929  
300, 2747  
361, 2728  
476, 3026, 3030, 3037,  
3042, 3060  
555, 2927, 2960, 3060  
636, 2613, 2650, 2706,  
2774  
870, 2648, 2708, 3056  
919, 670  
951, 3060  
1441, 3025, 3036, 3038,  
3045  
1790, 2684  
1791, 2581, 2614  
2018, 104, 268, 279,  
338, 564  
2027, 2762  
2039, 2393, 2544, 2927,  
2958, 2964  
2188, 2748, 2755  
2274, 2747, 2859, 2919  
2406, 2708  
2494, 2896  
2560, 298  
2876, 2927  
2903, 2660  
3004, 431  
3006, 3017  
3224, 2927  
3414, 431  
3486, 431  
3559, 3051  
3567, 2715, 2716  
3603, 2749, 2894, 3051  
3606, 3051  
3781, 2728  
3807, 2927  
3936, 2927  
3965, 2654  
4090, 2765  
4177, 2422  
4362, 681  
4402, 2709  
4592, 2565, 2983  
4904, 2484, 2764  
4959, 3057  
5154, 2884, 2921  
5262, 2596  
5382, 856  
5657, 663  
5707, 1870, 2927, 2965  
5833, 907  
5834, 907  
5836, 907  
5931, 2467  
5932, 2467

5939, 4001  
6029, 2773  
6430, 2773  
6519, 2583, 2614, 2694  
6741, 201, 306  
7042, 2693  
7066, 308  
7175, 687  
7305, 687  
7319, 704  
7331, 2633, 2645  
7438, 306  
7442, 3051  
7472, 78  
7735, 2550  
7748, 3061, 3073  
7858, 686  
8006, 1062, 1089, 1088  
8089, 2501  
8211, 681  
8306, 3065  
8438, 2498, 3003  
8545, 1772  
8646, 2660, 2896, 3019,  
3035, 3036, 3045  
8647, 2774, 2896, 3019,  
3035, 3036  
8761, 2879, 2921  
8769, 2927, 2959, 2962  
9369, 177, 592, 608  
9579, 2764  
9588, 2400  
9609, 2765  
9616, 2648, 2765  
9628, 2560  
9639, 2740  
9849, 1062, 1091  
9884, 696, 721, 730,  
882, 891, 893  
10186, 2636  
10211, 2636  
10227, 2524  
10270, 2708  
10319, 2731, 2733, 2734  
10320, 1787, 1789, 2040,  
2675  
10441, 850, 908, 937,  
10755, 730  
10794, 1798, 3032, 3037,  
10795, 1793, 3032, 3037  
10815, 932  
11365, 2549, 2927  
11450, 2566  
11720, 2557, 2635  
1803, 2588  
2035, 2735  
2137, 1062, 1075  
2138, 1062, 1075

## English

- 12229, 701  
 12233, 1918  
 12406, 3019, 3024, 3056  
 12422, 79, 571, 1873,  
     3032  
 12551, 230, 3065  
 12601, 919, 920  
 12633, 2393, 2518  
 12748, 681  
 12962, 2122  
 13080, 919, 920  
 13097, 856, 904  
 13098, 2562  
 13100, 232, 2538, 2623,  
     3032, 3033, 3034,  
     3035, 3036, 3037,  
     3038, 3040, 3053  
 13692, 2391, 2537, 2538,  
     2675  
 13753, 2918  
 13946, 2492, 2769  
 14023, 856, 904, 905,  
     906  
 14194, 3059, 3082  
 14200, 2615  
 14271, 2399, 3010, 3030  
 14293, 2582, 3046, 3057  
 14304, 3026, 3030  
 14381, 985, 991  
 14559, 2632, 2647  
 14586, 2582, 2618, 2700  
 14707, 2560  
 15276, 2683, 2743  
 15410, 2927, 2981  
 15525, 671, 730  
 15700, 91, 3015, 3017  
 15752, 3071  
 15817, 1299  
 15973, 856, 906  
 15991, 88  
 16185, 2618, 2646  
 16368, 856  
 16455, 934  
 16480, 2895  
 16522, 919, 920  
 16560, 2748, 2861, 2901  
 16629, 88, 2634, 2644  
 16723, 2613  
 16765, 930, 932  
 16832, 3026  
 17089, 68  
 17194, 2976  
 17242, 2684  
 17359, 1299  
 17392, 2728  
 17427, 2587, 2614  
 17602, 2554  
 17618, 2554  
 17896, 2485  
 18076, 3025, 3036, 3038,  
     3045  
 18189, 3043  
 18315, 2646, 3081, 3082  
 18475, 704  
 18606, 1876, 1880, 2692  
 18607, 86, 1876, 1880,  
     2693, 2692  
 18930, 2611  
 18973, 2741, 2742  
 19142, 271  
 19166, 2624, 2632, 2638,  
     2641, 2647  
 19249, 856, 905, 906,  
     909, 917, 937,  
     946  
 19250, 856, 905  
 19251, 856, 905  
 19259, 908  
 19350, 2532  
 19449, 1081  
 19554, 2879  
 19778, 856, 906, 908  
 19844, 1082  
 19853, 104  
 20048, 1062  
 20127, 856  
 20131, 1283, 1287  
 20180, 1062, 1084  
 20325, 703, 895, 900,  
     943  
 20494, 2927  
 20672, 3008, 3056  
 20777, 693, 700  
 21016, 3042  
 21071, 2927  
 21214, 1062  
 21401, 2775  
 21410, 2882  
 21628, 928, 929  
 21719, 3051  
 21721, 700  
 21750, 2760, 2769  
 22030, 2927  
 22105, 2629  
 22309, 2394, 3024  
 22311, 2582, 2702, 3077,  
     3079  
 22319, 700, 721, 882,  
     892  
 22320, 882, 891, 986  
 22321, 1273  
 22322, 698, 848, 882,  
     986  
 22425, 2895  
 22426, 2898  
 22605, 2422  
 22651, 2710  
 22745, 1006A  
 22779, 2923  
 22834, 1889  
 22869, 301  
 23046, 932  
 23092, 2683, 2718  
 23117, 2492  
 23138, 2751, 2879  
 23145, 2927, 2954  
 23157, 1293  
 23189, 2561  
 23252, 1293  
 23264, 2727  
 23331, 1073, 1078  
 23368, 1307  
 23548, 1293  
 23551, 1293  
 23573, 295, 2770, 3061  
 23688, 2750  
 23873, 3054  
 23924, 3000  
 24033, 2717  
 24244, 2750  
 24379, 949, 960, 996  
 24382, 9011, 3013, 3016,  
     3017  
 24413, 681, 685  
 24552, 2732, 2738  
 24607, 701, 944  
 24707, 2624, 2633  
 24980, 3017  
 25051, 297  
 25149, 2681, 2687, 2710  
 25274, 2927, 2960, 2967,  
     3060  
 25386, 949, 960, 996  
 25393, 302  
 25400, 239, 2763, 2765  
 25646, 2882  
 25804, 2741  
 25986, 87  
 26093, 2767  
 26284, 2563, 2564  
 26334, 2927, 2966, 2967,  
     3060  
 26749, 849  
 26789, 2602  
 26928, 2613, 2637, 3057,  
     3071, 3078, 3080  
 26932, 3081  
 26955, 1889  
 27020, 2587  
 27038, 2640  
 27209, 1402  
 27258, 2545, 3027, 3028,  
     3029, 3040  
 27273, 2587  
 27283, 1767, 2660, 2676,  
     2683, 2774, 2781,  
     2996

27288, 2718	403, 703, 982	4022, 2728
27303, 339, 1878, 2634	406, 3067, 3069	4078, 2633
27463, 686	411, 2400	4080, 2633
27482, 2910	491, 2603	4090, 2390, 2542, 2957
27486, 2919	564, 2602	4253, 2582, 2618, 2693
27539, 91	573, 2609	4268, 693, 703, 709
27558, 693, 700, 703,	611, 3000	4649, 2535, 2775
709	671, 701	4651, 2775
27560, 2927, 2947	849, 88	4690, 2586
27600, 91	891, 2683	4744, 3027
27700, 2699, 2953	972, 2742	4877, 2707
27703, 2561	992, 2955	5006, 2692
27764, 2705, 2776	1022, 2630	5077, 2612, 2628, 2649,
27785, 2894	1071, 2647	2897
27868, 2511, 2512	1123, 1267	5156, 273
27878, 76, 2629	1143, 673, 700, 720,	5157, 279
28004, 1269, 1280	985	5165, 2769, 2771
28069, 2777	1157, 2700, 2735	5167, 2769, 2771
28126, 1062, 1087	1237, 2966	5170, 2422, 2557
28156, 2768	1256, 2683	5269, 446
28193, 328, 568	1436, 2621, 3069	5282, 719, 937
28247, 2537	1512, 2728	5339, 705
28248, 1267*	1521, 2678, 2688	5552, 278, 2637
28329, 231	1556, 3016, 3017, 3050	5553, 2652
28378, 2393	1712, 2979	5581, 2725
28491, 2592, 2773	1832, 310	5712, 2652, 2671, 2698,
28779, 76	2064, 2578, 2614, 2683,	2766
28839, 2999	2692	5713, 941
28892, 837	2116, 931	5795, 920
28933, 700	2135, 932	5833, 856, 908, 909
28941, 747	2145, 2579, 2692	5834, 856
28942, 747	2195, 2728	5835, 856, 898, 906,
29046, 91	2379, 28	908, 909, 937
29073, 2391	2456, 78, 2583, 2610,	5836, 856
29075, 2766	2655	5838, 941
29087, 292	2494, 1893, 2598, 2700	6019, 297
29165, 3002	2500, 2894	6099, 2520
29246, 91, 2493, 3016,	2834, 2955	6160, 2761
3017	2835, 2955	6241, 3017
29299, 919, 920	2836, 1851, 2254	6279, 2748, 2878, 2870
29391, 748	3070, 2603	6523, 2746
29509, 2765	3116, 2977	6603, 2728
29580, 2747	3139, 3032, 3035	6632, 2652
29582, 1872, 1880	3181, 274, 269, 612	6798, 3059
29715, 919, 920	3226, 687	6995, 2710
29893, 693	3251, 882	7083, 336
29906, 949	3326, 688	7099, 2760
29907, 2778	3327, 2695	7201, 2827, 2837, 2841,
30275, 2762	3384, 2707	2847, 2897
30306, 2631	3496, 2768	7442, 3057
30398, 3058, 3075	3497, 2768	7652, 2746
	3498, 2768	7719, 1819, 1827, 1871,
	3602, 637, 2555	2255
	3831, 2630	8012, 2537
	3843, 1073, 1079	8142, 1386
	3853, 2683	8214, 294
	3879, 2978	8260, 97
	3973, 2999, 3018, 3053	8313, 3017, 3031
	3981, 1073, 1079	8318, 2760
61, 856, 908		
309, 91, 2493, 3016		
3017, 3071		
319, 703, 982, 997		
332, 268		
400, 2681, 2721, 2747		



## English

8370, 2652	13325, 2706	1245
8528, 1124, 1132, 1203	13340, 2556	17158, 13591, 1381
8533, 882, 986	13383, 1031	17221, 1857, 2254
8567, 2728	13442, 2946, 2963, 2966	17259, 2390, 2445
8613, 2503	13443, 2946, 2963, 2966	17291, 2391, 2466
8638, 295	13549, 1837, 1874	17355, 1281
8826, 2680	13597, 2708	17411, 898, 908, 917
9032, 2632, 2642	13860, 1871, 2947, 2963	17472, 1269, 1281
9073, 3077	13861, 1871, 2394, 2963	17610, 2997
9139, 2748	14121, 882, 891	17626, 664, 3096
9264, 2503, 2659, 2673,	14122, 882, 891	17666, 681, 686
2763	14142, 3032, 3071	17714, 268
9268, 2679, 2716	14266, 2647, 2648, 2651	17985, 2537
9336, 88	14315, 2511	18053, 1363
9461, 729, 1402	14528, 702	18157, 2708
9473, 2492	14628, 1025, 1028	18191, 293
9559, 2735, 2768	14631, 681, 686, 929	18202, 1032
9682, 701, 944	14633, 2560	18207, 918, 932
9721, 2467	14699, 2467, 2526	18286, 2620
9722, 2485	14787, 2567	18345, 2501
9742, 1874, 2967	14871, 299	18352, 2881
9743, 1837, 1874	14943, 2607, 2609	18356, 2484
10293, 2684, 2764	15105, 298	18503, 2766
10324, 2684, 2764	15195, 2560	18519, 2735
10522, 953, 714	15203, 2397, 2465, 2484	18606, 2015
10673, 2614, 2634, 2650	15204, 2397, 2465, 2484	18607, 2603
10708, 2584, 2614, 2687	15286, 2688	18777, 2964
10757, 2681	15432, 721, 983, 999	18818, 3023
10826, 2401, 2466	15657, 3045	18856, 2684
10915, 2519	15755, 2876	18895, 1063
10928, 2577	15761, 2604, 2620	18965, 2901, 2910
11004, 2561	15775, 2492	19022, 703, 714, 90
11029, 2526, 2528	15829, 2716	19039, 2702
11225, 2910	15945, 2578, 2774	19314, 1073
11245, 949	15948, 714, 993, 994	19366, 2549
11252, 2560	16000, 3007	19450, 2633
11489, 270	16153, 2419	19504, 2713
11495, 1785	16152, 1111, 1123	19565, 2702
11577, 2723	16188, 729	19744, 3082
11635, 2634	16201, 2881	19927, 2569
11714, 76, 2654	16270, 2559, 2785	19965, 949
11728, 2402, 3019	16271, 2908, 2919, 3047,	20015, 2896
11903, 2762	3050, 3061	20027, 2642
11904, 2597	16274, 2707	20063, 1295
11941, 1727	16277, 2393	20119, 2893, 3071, :
11990, 2725	16278, 2536, 2699	20220, 268, 297
12307, 2556	16606, 2673	20251, 2881
12214, 1073	16673, 2979	20395, 293
12259, 102	16720, 2647, 3073	20656, 3066
12307, 681, 685	16810, 2492, 2493, 2608,	20873, 2677, 2744, :
12308, 681, 685	2620, 2710	20877, 3013
12314, 918, 923	16866, 729, 1365, 1402	20920, 2688
12555, 928	16925, 2397, 2443, 2465,	20955, 3013
12650, 2768	2484	20956, 3013
12662, 920, 927	16966, 2710	20957, 3013
12746, 2761, 2765	17018, 929	20958, 3018
12933, 297	17127, 2705	20959, 3013
12991, 2602	17143, 2512	20975, 3008, 3021, 3043
13018, 2556	17157, 1062, 1091, 1339,	20976, 3008, 3040

20977, 3012, 4030	24120, 2734	28178, 2654
20978, 2309, 2538, 3012,	24124, 2708	28196, 2711
3014, 3025, 3030	24135, 2734	28306, 2762
20979, 3012, 3051	24471, 2697	28358, 2642
21090, 2746	24558, 900	28361, 2687, 2721
21147, 1789, 2054, 2056	24646, 2880	28471, 2705
21151, 856, 908, 909	24657, 856, 908	28472, 2705
21157, 2587	24662, 2762	28489, 297
21261, 2880	24960, 2977	28508, 2765
21315, 2567	25141, 919	28684, 2660, 2686
21328, 297	25206, 3066	28703, 1072
21426, 3059, 3077, 3079	25245, 2613, 3077	28867, 1893
21503, 2592	25252, 856	29030, 2633, 2650
21562, 2699	25255, 297	
21589, 933	25359, 2078	<b>1912</b>
21667, 2592	25436, 3079	157, 1026
21724, 949	25449, 2537, 3060	277, 2467, 2469
21749, 2728	25454, 1026	356, 72, 2636
21834, 2805	25495, 2561	512, 2394
21906, 2777	25532, 71, 86, 681	517, 2702
21994, 308	25533, 71, 86, 681	613, 3060
21996, 1062, 1063, 1070	25449, 2765	654, 2728
22231, 929*	25533, 2645	660, 2016
22237, 149, 140, 3005,	25534, 86, 2645	784, 926, 3004
3016, 3017, 3019,	25541, 2709	799, 1871, 2394
3021	25702, 918	804, 696
22248, 2745	25805, 2512, 3060	806, 2711
22311, 2156, 2958	25893, 3061	822, 3007
22411, 2422	25927, 2616	1002, 930
22531, 681	26019, 298	1073, 3065
22534, 3065	26029, 2768	1154, 2387, 2540
22747, 2702	26036, 2393	1161, 917
22795, 2389, 2400	26043, 299	1269, 2768
22930, 687	26128, 1024, 1076	1378, 3064, 3068, 3071,
23139, 78	26334, 2966	3077, 3078
23173, 2702	26371, 849	1460, 3062
23221, 2752, 2806	26614, 2768	1480, 2880
23255, 329	26749, 856, 908, 917	1494, 2560
23324, 3022	26824, 294	1495, 2560
23331, 1072	26935, 2660	1573, 79, 3072
23360, 2880	27048, 2698	1598, 2770, 3081, 3082
23497, 2880	27209, 1369	1599, 3081
23499, 2749, 2880	27451, 1062, 1063	1774, 685, 689
23525, 2728	27491, 415	1941, 2560
23544, 1006B	27559, 2560	1994, 1203
23551, 2880	27562, 2538	2004, 2750
23570, 2688	27578, 2690	2069, 312
23589, 2742, 3076	27579, 2592	2137, 2423
23600, 2579	27683, 2694	2140, 931, 1062, 1087,
23630, 2503, 2650, 2673	27732, 2702	1088
23813, 1281	27835, 73, 2653	2141, 3066
23825, 2805	27930, 28	2149, 3067, 3080
23826, 2749	27960, 2492	2218, 2880
23864, 1273	27969, 2608	2222, 2633
23967, 2692	28075, 681	2311, 931
23995, 2558	28078, 1072	2317, 2409
24035, 896, 900, 922,	28167, 856, 898, 904,	2354, 2660
937	909	2367, 1070
24045, 3068	28177, 2978	2389, 1369, 1370

## English

2527, 3021	2421	11391, 927
2753, 2123	6798, 3040, 3057, 3077,	11393, 923
2850, 3007	3079	11395, 923
2867, 2396	6003, 2485	11452, 1287
3034, 3083	7292, 2548, 3027, 3046	11470, 2770
3042, 3080	7457, 2485, 2501	11520, 2694, 2696
3108, 2746	7477, 2880, 2881, 2895	11568, 287, 312
3118, 2577	7480, 2876	11613, 73
3147, 681, 686, 690,	7687, 3006, 3012	11750, 1063
853	7722, 1078	12027, 1062, 1084
3342, 699	7728, 1370, 1375, 1390	12051, 681
3344, 920	7740, 896	12128, 2578, 2614
3345, 856, 909	7893, 92, 234, 3064	12321, 2556
3385, 2880, 2883, 2888	7975, 2156	12324, 3076
3408, 2737	8097, 1031	12350, 2717
3410, 698, 931	8194, 2584, 2610	12710, 2633
3572, 2512	8218, 1062, 1092	12742, 1867, 2393, 2546,
3583, 3065	8347, 920	2985
3612, 2689	8348, 919, 920	12743, 1829, 1867, 2393,
3860, 2548, 3027, 3046	8349, 920	2546, 2985
3870, 2484	8402, 2770	12744, 1829, 1867, 2546,
3920, 2629, 2988, 3074	8426, 1075	2985
4043, 2751	8511, 2621, 2768	12745, 1829, 1867, 2393,
4044, 2888	8512, 2621, 2768	2546, 2985
4064, 2629, 2643, 2898,	8523, 2765	12746, 1829, 1867, 2393,
3074	8617, 856	2985
4065, 2893, 2898, 3074	8706, 2679	12770, 2393, 2958, 2964
4066, 2898, 3074	8866, 2894	12788, 2896
4160, 2565	8900, 3007, 3009	12837, 920
4610, 73, 90, 2653	8992, 1975	12845, 681, 927
4775, 2511	9082, 431	12854, 23, 37
4877, 2775	9146, 1076	12995, 3056
4885, 2689	9167, 2876	13134, 2595
5026, 1122	9388, 2713	13141, 1032
5087, 2895	9412, 929	13175, 1212
5125, 2391, 2484	9841, 856, 904	13225, 2709
5213, 2560	9842, 856, 904, 909	13239, 2537, 2894, 3033
5223, 2583, 2613	9897, 2712	13373, 2955, 2967
5350, 2618, 2621, 2709	10021, 2716	13431, 2775
5380, 2631	10036, 900, 919, 920	13541, 2728
5646, 2695	10062, 1790, 2960	13563, 2742, 2743
5659, 90, 329, 1880	10147, 1026, 1028	13603, 2726
5795, 10064	10187, 2711	13691, 1875, 3080
6031, 3076	10222, 2582	13860, 2961
6268, 1885, 2247, 2660,	10228, 2660	13984, 453
672, 2676	10260, 570	14114, 927
6289, 2894	10353, 2772	14133, 2881
6203, 2768	10430, 102, 105, 2640,	14257, 2803
6294, 2768	2645	14412, 932
6327, 1924	10479, 719	14527, 151
6363, 2771	10706, 3010, 3020	14585, 916
6387, 2613	10718, 681, 686	14590, 2899
6405, 2771	10810, 1062, 1091, 1093	14607, 681
6408, 73, 2631	10852, 3013	14871, 850
6449, 927	10992, 699, 709	15027, 2876
6491, 303	10988, 2709	15080, 2623, 3077
6497, 2484	11120, 2901, 2910	15258, 449
6498, 2485	11363, 697	15459, 1209, 1239, 1276
6652, 272, 284, 660,	11390, 922	15460, 1080

15605, 2976 •	19573, 7540	23504, 729
15657, 2650, 2671, 2766,	19600, 312, 1062, 1087,	23728, 99, 3007, 3044
2774	2997	23763, 1073 •
15742, 927	19758, 2716	23776, 2771
15779, 301	19764, 2466, 2468, 3022	23777, 2743, 3000
15868, 3010	19854, 2894	23829, 2711
15934, 926	19867, 1235	24041, 2603
16014, 850	20108, 1073	24059, 2536, 2769, 2771
16085, 104, 338, 564,	20189, 994	24060, 1832, 2536, 2769,
2025, 2720	20536, 2750, 2882	2771
16156, 2606	20527, 3007, 3009, 3040	24125, 301, 313
16206, 918	20555, 2882	24129, 2577
16406, 900, 920 •	20758, 1400	24138, 2750
16450, 1076	20759, 1025, 1072, 1073	24150, 2741
16615, 2646, 2770, 2895,	20760, 1025	24216, 2621, 2768
3045	20852, 2399, 3008, 3012,	24254, 2536, 2768, 2769
16616, 2646, 2764, 2770	3013, 3025, 3030	2771
16620, 2391	20871, 2726, 2728, 2761	24255, 2536, 2771
16681, 2610, 2620	20986, 2778	24324, 2695
16806, 681	21073, 2397, 2484	24471, 2728
16891, 2643	21081, 2620	24779, 2527
17038, 701, 848	21304, 945	24982, 2768
17069, 2539, 2660, 2670,	21367, 2391, 2548, 2768	24996, 71, 3075
2675 •	21368, 2391, 2549, 2582	25146, 2697
17147, 2689, 2723	21376, 2399, 3008, 3012,	25256, 2683, 2746, 2751
17155, 2593, 2963	3013, 3014, 3025,	25259, 856, 903
17235, 2444, 2485	3030	25260, 856
17338, 3061	21458, 2660, 2761, 2765	25600, 1206
17384, 1074	21476, 1086, 1087, 1099,	25629, 682, 688, 853,
17427, 268	1295	929
17431, 681	21478, 882	25630, 919
17472, 1893 •	21539, 3065	25674, 2726
17549, 2684	21548, 1356	25849, 2122
17574, 2735, 3057	21596, 2634, 2648, 2650	25857, 2660
17742, 268	21708, 2671, 2726, 2755	25874, 922
17842, 2550	21857, 2560	25893, 150, 3012
17953, 2589, 2590	21865, 920	25935, 1444
18166, 2697	21889, 2637, 2644	26056, 729
18281, 2775	21947, 2122	26098, 992
18287, 2775	22240, 2948, 2963	26182, 2767, 2778, 2790
18334, 2560	22352, 856	26365, 1025
18450, 923, 944	22435, 920	26370, 1025
18506, 2502	22436, 3069	26472, 3067, 3069
18653, 2466, 2484	22449, 2771	26482, 1091
18666, 2710	22543, 2643	26594, 1025, 1028, 1033
18822, 2492, 2542, 2674, •	22621, 2542, 2771 •	26595, 1025
2769, 3043	22622, 2390, 2542, 2582	26770, 856
18823, 3001	22623, 1817, 2542, 2675	26987, 3057
18824, 2542, 2769	22626, 2542, 2771	26999, 1062, 1084, 1087,
18946, 456 •	22645, 3012, 3013	1094
18949, 456	22880, 2898	27001, 2560 •
18950, 456 •	22964, 2642	27188, 269
18965, 2629, 3073	23306, 335	27198, 1850
18996, 2524 •	23325, 2728	27227, 3008, 3010
19001, 76	23377, 3005	27228, 2528, 3010
19334, 297, 329	23420, 2560	27269, 2649
19381, 1871, 2540, 2961,	23523, 2768	27283, 2734
2963	23544, 2545, 2548	27322, 2682, 2893
	23554, 2582	27428, 2485, 2487

## English

- 27429, 2485
- 27430, 2485
- 27479, 415
- 27654, 748
- 27676, 2632, 3069
- 27708, 2750, 2876
- 27713, 921
- 27732, 3067, 3069
- 27966, 3082
- 28083, 2632
- 28103, 2632
- 28200, 856
- 28210, 2008, 2613, 2693, 3057
- 28225, 3073
- 28320, 2632
- 28335, 2748
- 28392, 3047
- 28497, 2523
- 28844, 730
- 29030, 1401
- 29112, 2880, 2888
- 29260, 856
- 29513, 2888
- 29568, 1222, 1265
- 29573, 2562
- 29616, 2882, 2895, 2901, 3080
- 29696, 287, 312
- 29901, 1859
- 29961, 2468, 2485
- 29962, 2485, 2488
- 29963, 2468
- 29964, 2390, 2467
- 29990, 2712
- 29997, 2492, 2608, 2620
- 30072, 205
- 30073, 205
- 1913**
- 86, 3072
- 139, 922
- 159, 2552
- 248, 2560
- 289, 2688
- 304, 284
- 330, 3070
- 344, 1389
- 400, 209
- 447, 2687
- 507, 2735
- 607, 2771
- 680, 2728, 3061
- 684, 338, 564
- 714, 2746, 2777
- 722, 674
- 866, 850
- 879, 2390, 2468, 2485, 3023
- 940, 2389, 2542
- 1063, 721
- 1081, 2694
- 1142, 940
- 1156, 3007
- 1315, 2599
- 1316, 2982
- 1500, 1345
- 1851, 941
- 2008, 2739, 2768
- 2165, 857
- 2178, 3010
- 2182, 2744
- 2214, 857
- 2392, 2952
- 2408, 1223, 1354
- 2425, 2743, 2795, 3060
- 2465, 2497, 2498, 2624, 2630
- 2488, 2527
- 2491, 3008, 3060
- 2695, 1307
- 2779, 2468, 2488, 2496
- 2902, 91, 2636, 3069
- 3063, 3065
- 3133, 2468, 2488, 2496, 2502
- 3168, 3068
- 3169, 3068
- 3194, 688, 700
- 3261, 1863
- 3264, 846, 986
- 3271, 2393, 2769, 2771
- 3296, 2739
- 3312, 2762
- 3313, 2762
- 3334, 2735
- 3388, 2982
- 3444, 1354
- 3505, 1309
- 3528, 2952
- 3566, 2771
- 3662, 682, 703, 852, 900, 938, 939
- 3801, 612
- 3841, 2760
- 3849, 2503, 3006, 3008
- 3903, 304
- 3991, 2741, 3060
- 4016, 2618, 2691
- 4076, 2548
- 4203, 424, 428
- 4214, 2396, 2608
- 4246, 1081
- 4353, 3008, 3060
- 4370, 2760
- 4521, 177, 336, 2762
- 4596, 2631
- 4601, 2554, 2749, 2897, 3051, 3075
- 4663, 2671, 2775
- 4723, 850
- 4725, 850
- 4770, 1031, 1300
- 4922, 91
- 4940, 1829, 2254, 2393, 2546
- 4941, 1829, 2546
- 4966, 98, 2649
- 5051, 930
- 5079, 1111, 1120
- 5154, 76
- 5170, 3082
- 5174, 1111, 1121
- 5368, 2555
- 5448, 2771
- 5533, 2552, 2771
- 5553, 2007, 2625, 2655
- 5825, 2700
- 5907, 2697
- 6000, 2994
- 6035, 23, 37, 2613
- 6136, 850
- 6210, 2684, 2701
- 6303, 2579, 2746
- 6387, 37
- 6512, 2622
- 6668, 235, 2639, 2652
- 6770, 2712
- 6886, 2896, 2898
- 6993, 2877
- 6915, 2629, 2652
- 6949, 957
- 7038, 3059
- 7086, 2582, 2618, 2621
- 7093, 2709
- 7137, 2768
- 7238, 1026
- 7272, 1086
- 7324, 311
- 7418, 3057
- 7562, 2634, 2650, 2896
- 7571, 2910
- 7588, 2682
- 7597, 986, 992
- 7699, 2741
- 7839, 918, 1122
- 7872, 299
- 7888, 2560
- 7892, 1400
- 8068, 2670
- 8274, 1025
- 8283, 2625, 2639, 2752, 3080
- 8350, 304
- 8376, 2122
- 8417, 2711
- 8417, 2771

8409, 336	12377, 620	16940, 2302, 2582, 3007,*
8684, 187	12401, 934	3045
8757, 2768	12804, 3049	16978, 2532, 2900
8854, 2700, 2795	12927, 682, 928	16997, 428
8880, 2579, 2687	12971, 2695	17015, 2996
8934, 2564	12977, 856, 916, 1151	17016, 2996, 2998
8982, 2560, 2561	12981, 1122	17017, 2994
9040, 2770	13086, 1859	17035, 1207, 1209
9173, 2740, 2742	13250, 705	17128, 2917
9263, 856, 896, 909,	13258, 856	17205, 2917, 2961, 2979
910	13360, 2634	17307, 1869, 1879, 2400
9450, 2543	13433, 2552	17483, 2485
9451, 2492, 2543	13508, 2122	17523, 2387, 2493, 2538,
9499, 2400	13614, 2711	2567
9654, 856	13657, 2774	17531, 2387, 2567
9696, 2498, 2764	13746, 304	17643, 2762
9757, 2629	13842, 984	17662, 2741
9758, 2561, 2629	13882, 3060	17799, 2882
9786, 2588, 2599	13895, 2708	17873, 1027, 1084
9883, 2560	13994, 2713	17937, 929
9912, 295	14003, 1970, 2006	17953, 1784, 2387, 2576
9966, 2684	14125, 2700	17979, 2880, 2883
9985, 2538, 2771	14246, 2391, 3002	18105, 2660, 2676, 2680,
10043, 2726	14418, 2557	3044
10055, 2467, 2493	14481, 2777	18113, 882, 903, 1309
10198, 2673	14677, 2485	18279, 2603
10421, 2711	14708, 2565	18371, 298
10681, 2729	14732, 2614, 2620	18499, 2492, 2512, 2542,
10753, 2695	14939, 299	2769, 3031
10816, 2689	15049, 2485	18563, 2592
10909, 2748, 2896	15165, 1111, 1121	18579, 900, 1203
10975, 920	15256, 2607	18615, 1235, 1236, 1291
10981, 2409	15263, 2560	18680, 2633
11000, 664, 2642	15294, 1239, 1251	18836, 2615
11083, 2746	15316, 2551, 2720, 2766	19001, 76
11091, 920	15386, 2496, 2578, 2683,	19008, 3008, 3061
11104, 3073	2684, 2694	19084, 1223, 1290
11206, 984	15387, 2684	19099, 273, 278, 606
11581, 2778	15388, 2684	19463, 2390
11598, 2683, 2689	15605, 2953	19481, 1402
11644, 2711	15612, 1084	19881, 817, 986
11653, 3018	15678, 1370	20000, 2724
11717, 2690	15679, 1209, 1223, 1290,	20189, 997
11741, 2392	1291	20355, 295
11768, 2620	15713, 929, 930, 936,	20504, 2537
11797, 926	2393	20505, 2537
11809, 1859	15782, 2708, 3060	20667, 1091, 1094
11828, 711	15823, 2882	20942, 2485
11836, 2684, 2691, 2722	15880, 3052, 3062	20976, 3045
11854, 996, 1307, 1464	16031, 1871	21015, 907
11889, 2778	16176, 2703, 2741	21211, 682, 699
11923, 2695, 2696	16456, 2345, 2948, 2966,	21291, 837, 1363
11928, 2702, 2703	2980	21366, 920
12057, 923	16481, 2645	21559, 932
12067, 1214	16554, 2585	21385, 1031
12070, 642, 2585	16730, 2704	21560, 932
12090, 3051, 3068, 3075	16848, 2994	21778, 2897
12142, 2765	16903, 666, 898	21826, 2639
12346, 2697, 2980	16905, 3008, 3043, 3060	21897, 1072

**English**

- 21913, 3058  
 22119, 933  
 22234, 2895  
 22358, 2769  
 22400, 2560  
 22421, 2769, 2771  
 22515, 2560  
 22544, 2536, 2771  
 22568, 920  
 22644, 2602, 2604, 2621  
 22707, 3023  
 22746, 992  
 22826, 3056  
 22837, 922  
 23938, 2878, 2879  
 23150, 2555  
 23196, 3080  
 23289, 3061  
 23320, 2697  
 23541, 1111, 1121, 1150  
 23605, 1303  
 23662, 2660  
 23740, 920  
 23957, 2591, 2614  
 23959, 715, 1001  
 24050, 2659  
 24060, 2659  
 24223, 1207, 1209  
 24336, 573  
 24347, 920  
 24376, 3071  
 24424, 2747  
 24533, 920  
 24702, 2552  
 24713, 2954, 2964, 2966  
 24731, 927  
 24738, 312, 2425, 2648  
 24823, 856  
 24839, 2552, 2964, 2966  
 24931, 1293  
 24938, 611, 2067  
 25131, 2716  
 25182, 2392  
 25288, 2739  
 25406, 418, 480  
 25415, 946  
 25419, 2408, 2492, 2876,  
 2881, 2909  
 25526, 1369  
 25691, 2633  
 25802, 1370  
 25830, 2775  
 26079, 2615  
 26269, 1270  
 26401, 2728  
 26493, 2957  
 26499, 701, 702  
 26732, 956, 1276, 1390  
 26787, 2393, 2896  
 26788, 2393, 2896  
 26825, 2390, 2501, 2994  
 26826, 2501, 2994  
 26915, 1073  
 27014, 2558  
 27030, 917, 920  
 27230, 988  
 27317, 2519  
 27537, 2614  
 27663, 2763  
 27671, 920  
 27837, 2718  
 27971, 917  
 27977, 1308  
 28071, 917, 920  
 28187, 2772  
 28195, 2728  
 28250, 3066  
 28261, 2558  
 28453, 2721  
 28524, 928  
 28550, 1223, 1282, 1291  
 28631, 2876  
 28629, 928  
 28737, 3085  
 28743, 1223, 1276, 1282  
 28929, 296  
 29026, 2578  
 29042, 1080  
 29254, 792, 1289  
 29542, 1387  
 29882, 3007  
 29988, 2485  
 30073, 682, 943  
 30075, 240  
 1676, 2997  
 2142, 2550  
 2164, 568  
 2318, 2883  
 2326, 2896  
 2794, 2895  
 3052, 2523  
 3053, 2776  
 3174, 1084, 1301  
 3370, 37  
 3545, 928  
 3546, 928  
 3547, 928  
 3531, 1073  
 3788, 2012  
 3937, 1876  
 4023, 918  
 4482, 1276  
 4513, 2636  
 4668, 2907  
 4821, 2702  
 5238, 3073  
 5408, 2390, 2401, 2542  
 5633, 2614, 3020, 3059  
 5737, 2546  
 5773, 729, 2541, 3001  
 5830, 1309  
 6288, 1248  
 6617, 1230, 1282  
 6677, 338  
 6716, 2777  
 6739, 682  
 6761, 1874  
 6775, 2421  
 6876, 300  
 6893, 2589  
 6897, 3024  
 7087, 2593  
 7300, 2675  
 7317, 3077, 3078  
 7370, 2775  
 7418, 2995, 2996  
 7419, 701, 838, 848  
 7471, 1073  
 7560, 2777  
 7647, 2960  
 7738, 2562  
 7824, 2608  
 7850, 2649  
 7866, 898, 916  
 7880, 3050  
 7899, 3057  
 8006, 206  
 8126, 2692  
 8154, 3054, 3061  
 8306, 2122  
 8462, 849, 1150  
 8728, 2882  
 8877, 2503

**1914**

- 18, 2728  
 76, 2720, 2755, 2773  
 187, 2643  
 213, 939  
 214, 939  
 468, 932  
 528, 2777  
 530, 456  
 708, 3065  
 714, 2614, 3062  
 826, 3064  
 834, 3064  
 944, 293  
 1016, 2761  
 1049, 3048  
 1138, 2614  
 1145, 284, 312  
 1155, 2774  
 1156, 3010, 3017, 3020  
 1223, 2660, 2763  
 1292, 296  
 1335, 2421

8818, 2770 •	14042, 3007, 3010, 3028	23137, 2589
9081, 2660, 2698	14070, 300	23181, 1424
9184, 2702, 2770	14111, 3079	23190, 2905, 3001, 3002
9259, 928	14113, 2996	23202, 932
9266, 3006	14216, 2623, 2628, 2643	23414, 1375
9270, 2548, 2660, 3041	14295, 1075, 1076	24033, 2501, 2582
9291, 2776	14339, 3064, 3068, 3077,	24042, 927, 2552
9292, 2773	3078	24117, 927
9370, 2604	14357, 811	24153, 2065
9390, 2772	14371, 2397, 2400	24196, 305
9547, 1878	14448, 895, 897, 917	24201, 3089
9661, 939	14675, 3067	24296, 2554, 2977
9821, 930, 936	14808, 3047	24401, 2095
9968, 2896	15181, 2896	24735, 687
9969, 2896	15271, 2549, 2578	24777, 3062
9973, 2303	15333, 678	
9974, 682, 703	15355, 1859	<b>1915</b>
10351, 2554	15463, 1073	75, 3013, 3061
10377, 2996	15544, 3053	138, 1076
10420, 689, 930	15572, 2500	140, 2615
10497, 2566	15669, 2994	780, 3024
10605, 93	15761, 3077, 3079	801, 3004
10612, 933, 943	15776, 3082	916, 611
10780, 2556	15875, 2768, 2769	923, 2909
10797, 2563	16149, 2685	1054, 2711
10867, 2642	16187, 1209	1283, 2955
10983, 2590	16474, 2421	1288, 2501
11217, 2650	16523, 1087	1358, 856, 1511
11394, 2772	16597, 943	1495, 1357, 1370
11614, 2579	16692, 2546, 2960	1572, 3072
11835, 1783, 2468 •	16957, 2995	1670, 695
12057, 921	17158, 2728	1894, 2604
12086, 619	17272, 2640	2011, 1114
12173, 2650	17348, 1879, 2642 •	2067, 2917
12328, 2560	17495, 3076	2167, 2746, 3080
12474, 730	17501, 2552	2286, 927
12475, 730	17656, 2960	2392, 946
12592, 669	18199, 271	2411, 2893, 2897
12600, 887, 938, 939	18332, 307	2485, 3070
12719, 3061	18556, 2629, 2642	2834, 1027
12822, 2773, 3068	18605, 793, 798, 1084	2865, 300
12895, 2698	19267, 1879, 2960	3198, 3075
13055, 3067	19547, 1786, 2964	3208, 996
13072, 2893, 2898, 3075	19792, 987, 988	3338, 3083
13100, 2992	20426, 2683	3953, 851
13138, 2959	20550, 2433	4070, 2554
13150, 2614	20988, 2775	4278, 270
13280, 2408, 2402, 2876	21002, 2660, 2677	4287, 847, 920
13332, 921	21016, 3013	4289, 2078 •
13508, 447	21082, 2982	4345, 982, 994, 99
13642, 1370, 1390 •	21264, 2772	4845, 2397
13687, 856, 896, 940	21880, 1081 •	4887, 2501
13689, 918	22080, 1108, 1413	4922, 2426
13696, 3012	22586, 847	5073, 3024
13842, 704, 990	22718, 3061	5074, 3024
13848, 698, 856, 896,	22852, 927	5097, 682
916, 940 •	22867, 946	5099, 481
13872, 3050, 3054	23054, 2777	5132, 2995
14004, 2540, 2961	23055, 2777	5299, 1981



**English**

5359, 2762	13297, 698, 856, 896,	101091, 989
5744, 597	916	101307, 837
5027, 2979	13298, 698, 856, 896,	101406, 481
6026, 1207, 1209	916	101408, 1283
6048, 934	13689, 3050	101428, 2543
6102, 742, 814	13690, 3050	101475, 294
6104, 2642	13907, 790, 1306	101536, 2602
6363, 2008	14055, 936	101555, 3013
6463, 3013	14085, 2396	101636, 2390, 2543, 2772
7055, 1209, 1281	14101, 3013	101637, 814
7090, 310	14272, 2513	101641, 1357
7098, 2558	14321, 1392	101708, 3023
7099, 813, 1003	14490, 2775	101723, 2553, 2557
7284, 2768	14607, 2397	101875, 2557
7469, 2559	14655, 2254, 2546, 2960	101894, 77
7651, 698, 856, 896,	14656, 2254, 2546, 2960	101950, 793
916	15428, 3032	101961, 2979
7753, 2896	15455, 1424	102066, 2921
7763, 3012	15706, 2587	102114, 2608
7773, 3012, 3013	16001, 1357, 1370	102375, 2761
7837, 1313	16040, 2910	102527, 752, 825
7956, 2807	16148, 3082	102608, 490
8004, 338, 2767	16161, 2611	102609, 2698
8046, 3012, 3021	16215, 3003	102635, 2777
8152, 1269, 1281	16488, 301	102751, 2777
8202, 2602	16505, 2960	102891, 3066
8270, 813	16543, 1027	102945, 2424, 2425
9196, 234, 2648	16617, 1074	103479, 284
9365, 729	16742, 799	103480, 284
9762, 3004	16981, 1119, 1288	103649, 284, 312, 1880
9790, 456	17232, 1075	103650, 284, 312
9958, 1072, 1073, 1075	17541, 1447	103651, 284, 312, 1880
10049, 2670, 2760	17583, 2948	103652, 284, 312, 1880
10055, 2776	17846, 268	103653, 284, 312, 1880
10140, 2995	17920, 3001	103654, 284, 312, 1880
10202, 564, 568	18028, 2583	103655, 284, 312, 1880
10311, 2564	18065, 752	103682, 2555
10386, 1370, 1392	18134, 2492	103689, 792, 1027, 1062
10556, 1099	20716, 1029	103811, 2728
10781, 694	22091, 3080	103822, 284
10822, 3013	28737, 704	103877, 1229
10857, 2022		104032, 271
10858, 1899, 2622	<b>1916 up*</b>	104034, 1389
10925, 2969	190009, 3013	104173, 95, 271
11271, 920	190099, 881, 987	104202, 590
11485, 927, 932	190180, 3048	104207, 2621
11486, 932	190216, 939	104214, 632
11487, 788	190224, 562	104225, 2629
11544, 2508	190275, 694, 703	104363, 3072
11563, 2720, 2755	190450, 3001	104364, 3067
11569, 2728	190452, 3001	104461, 1206, 1216, 1251
12075, 2579	190459, 3001	104516, 1081
12091, 2882, 2901	190470, 939	104524, 632
12303, 1308	190597, 1113, 1129	104600, 946
12832, 798	190631, 2644, 2689	104734, 678, 695
12839, 3062	190675, 461	104742, 2593
12840, 2909	190869, 2585	104857, 2777, 2779
12946, 927	190930, 682	104986, 77
13292, 918	190939, 1069, 1087	105064, 2995

105065, 2985, 2906	112188, 960	118507, 1063, 1076
105106, 687	112196, 2765	118262, 2002
105137, 2578, 3049	112483, 3049	118270, 2775
105578, 930, 936	112618, 2955, 2967	118291, 300
105794, 2953	112765, 3002	118489, 2513
105935, 1388	112766, 3002	118505, 2700
105953, 848	112969, 597	118610, 2585
105993, 1388	113010, 74, 2628	118891, 3045, 3048
106086, 1870	113015, 1270	118954, 3023
106270, 2720	113017, 1108	119028, 301
106286, 2586	113494, 285	119030, 2426
106336, 2608	113551, 1388	119040, 302
106351, 959	113617, 2882	119243, 920, 927, 935
106375, 2583, 2584	113618, 2882	119249, 2423, 2468
106448, 2720, 2764	113954, 2390, 3023	119252, 2776
106483, 2995	113955, 2390, 3023, 3024	119253, 2776
106493, 312	113970, 2648	119290, 798
106585, 1062	113992, 751	119304, 2602
107205, 2769	114072, 1003, 1370	119333, 2426
107219, 197	114180, 798	119517, 2995
107255, 838	114304, 3008, 3045, 3051	119518, 2995
107370, 959	114435, 513, 577	119854, 2882, 2896
107584, 2995	114450, 513, 577	120031, 928, 935
107585, 2995	114456, 275	120035, 919, 935
107589, 1062, 1070	114487, 933	120086, 302
107606, 2998, 3005	114619, 2590	120163, 2424
107769, 2766	114663, 674, 687	120378, 989, 1004
107807, 801	114706, 750	120520, 205
107975, 2426	114817, 688	120546, 898, 946
108450, 2977	115254, 961	120551, 916
108459, 2996	115340, 798	120558, 2993
108671, 228	115439, 2763	120899, 668, 750, 894,
108688, 1062	115899, 2995	997
108855, 2410	116005, 293, 302	120951, 1426
108856, 2423	116103, 2655	121054, 2751
109056, 1119	116181, 804	121091, 3045
109194, 958	116214, 513	121141, 2669
109530, 2604	116268, 3068	121194, 3045
109789, 687	116279, 2994, 2997	121294, 2552
109814, 800	116288, 272	121318, 295
109915, 1270	116366, 3076	121499, 2919
109969, 2397	116495, 675, 893, 990	121635, 893, 930
109987, 2994	116590, 2555	121723, 280
110041, 2778	116604, 294	121730, 958
110183, 1370	116890, 2947, 2948	121734, 3073
110237, 2958	117016, 2771	121754, 899
110405, 798	117068, 2609, 2615	121797, 2421
110545, 2996	117086, 268, 276, 303	121855, 747
110637, 1002	117233, 747	122391, 2891
110691, 570	117259, 2557	122456, 2391, 2468
110776, 1111, 1120	117333, 687	122523, 921, 935
110906, 2995, 3002	117635, 2688	122527, 103
111054, 2897	117640, 2750	122630, 2388, 2417
111171, 2659, 2763	117649, 803, 1303	122661, 751
111539, 2684	117857, 2772	122677, 2607, 2609, 3048
111875, 798, 799	117887, 2896	122679, 2607
111913, 2896, 2612	117937, 687	122680, 2607
111946, 269	118094, 1076	122681, 2607
112166, 2423	118095, 1392	122685, 2555

## • English

122812, 303	125946, 2408	128372, 2546*
122829, 933	126013, 2540, 2969	128366, 1383
122925, 2411	126056, 2546	128403, 2397
123101, 2602	126058, 851	128477, 2777
123111, 239	126080, 851	128659, 3047, 3048
123325, 2997	126083, 694, 899	128507, 935
123326, 331	126149, 3080	128550, 2969
123341, 3024	126174, 3070	128623, 899
123344, 668, 750, 848, 896	126196, 2967	128635, 3023
123482, 2966	126263, 2630, 2710	128640, 2558
123628, 2394, 2508, 3048	126279, 2396	128659, 2579
123685, 2536	126320, 1391	128690, 3048
123752, 2554	126347, 3048, 3080	128691, 3048
123760, 934	126375, 1993, 2562	128714, 2397
123712, 3036, 3049	126396, 1203	128781, 2896
123784, 106	126479, 2994	128873, 2896
123796, 933, 1006 B	126511, 3023	128905, 2764
124010, 2770	126682, 2554	128911, 3013
124183, 3050	126687, 2956, 2977	128929, 2423
124191, 719, 989, 1004	126704, 1004	128939, 899
124194, 2995	126714, 1341	128974, 3048
124195, 2995	126715, 892	128978, 2079
124266, 1030	126716, 892	129024, 2554
124413, 2513	126717, 892	129033, 1739, 3048
124494, 3049	126745, 2881, 2897	129035, 3049
124495, 3049	126750, 2607	129305, 837, 986
124515, 3048	126989, 2538, 3050	129455, 3048
124516, 1836	127025, 917	129456, 3050
124520, 3050	127027, 3047	129630, 3047
124542, 3001	127031, 2392	129637, 946
124676, 285	127039, 1444	129698, 3048
124702, 2995	127047, 1231, 1292	129699, 892
124704, 2513	127063, 896, 898	129709, 751
124759, 898	127064, 896, 898	129712, 3050
124762, 898, 946	127128, 1031	129717, 2880
124763, 2538, 3050	127155, 2629, 3067	129904, 2424
24807, 3032, 3047	127259, 2969	129993, 2769
24824, 899	127301, 3050	130023, 899, 946
24842, 1296	127309, 2558	130029, 323, 2992, 3014
24844, 3050	127343, 899	130035, 2996
124852, 1214	127481, 2802, 2766	130038, 837, 986
124974, 1426	127585, 1889	130063, 899, 946
124988, 1303	127615, 3034, 3047	130069, 899, 946
124997, 957	127645, 694	130086, 900
125003, 3050	127652, 1370	130087, 900
125153, 3014	127677, 668, 807, 1303	130093, 2978
125261, 3050	127678, 3034, 3045	130138, 2994
125311, 807	127845, 899	130166, 1924, 2948, 2983
125394, 2636	127852, 688, 934	130204, 484
125444, 837, 898, 987	127871, 2943, 2966	130277, 107, 324
125453, 694	127872, 2966	130365, 900
125482, 2966	127873, 2969	130399, 3001
125601, 678, 916	127909, 2555	130402, 3028, 3047, 3048
125616, 998	128061, 743	130410, 2981
125617, 3050	128215, 3008, 3026, 3028, 3041	130608, 2776
125636, 3050	128274, 3048	130619, 1885, 2081
125714, 689	128282, 3001	130650*3001
125926, 2995	28302, 799	130651, 2996
		130660, 3001

130665, 1811	132520, 2905	135847, 921
130666, 2367	132551, 899, 942	135885, 921
130672, 3050	132557, 2995	135889, 685, 896, 921
130693, 695, 709, 847	132558, 2995, 2996	136141, 1739
130712, 1225, 1292	132559, 2995, 2996	136158, 709, 1005
130946, 1518	132560, 2995	136214, 3062
130962, 2554	132571, 899	136298, 2779
130966, 1402, 1517	132622, 920, 934	136342, 918, 942
130988, 2500	132625, 898	136433, 2615
130989, 2500	132626, 898	136489, 3024
130970, 2500	132647, 228	136568, 2025
131006, 2410	132661, 1062, 1124	136574, 3001
131029, 893	132704, 1387	136769, 2629
131049, 899, 946	132755, 3023	136772, 898
131082, 1787, 3049	132757, 3023	136778, 2707
131084, 2995	132813, 2615	136784, 2629
131088, 2500, 2509	132815, 96, 660, 2651	136804, 664
131093, 2579	132882, 898	136833, 1006.1
131112, 2770, 2776	132883, 898	136834, 1006.4
131212, 223, 2615	132923, 1124, 1203	136927, 1739, 1786
131275, 2554	132996, 2395, 2499, 2584	137006, 2712
131312, 2615	133041, 917	137036, 709
131321, 684	133095, 921, 1006B	137071, 709, 1005
131334, 721	133098, 921	137291, 2779
131335, 845, 907	133099, 921	137292, 2779
131336, 670, 719, 845	133100, 921	137293, 2779
131357, 3014	133101, 921	137388, 2396
131369, 3056	133104, 685, 921	137502, 2779, 2880
131379, 3001	133105, 921	137558, 2395
131384, 3048	133106, 921	137615, 2556
131389, 2254, 2546	133180, 2574, 2615	137701, 3002
131399, 2995, 3002	133353, 2608, 3039, 3045	137831, 504
131502, 1271	133441, 228	137834, 1004
131512, 1062, 1124	133712, 2779	138061, 2778
131600, 2503, 2504	133713, 2779	138078, 2394, 3029
131609, 688, 694, 896	133972, 2445	138083, 1860
131641, 3048	134015, 1287, 1292	138116, 3014
131642, 719, 896	134144, 2396	138130, 2621
131644, 1890, 2697	134160, 2577	138220, 2705
131647, 2395, 3029	134229, 894	138226, 2616, 3050
131669, 3030, 3041, 3048	134237, 896, 946	138371, 1006B, 2552
131678, 2537	134265, 2997	138379, 3045
131684, 688, 852	134521, 2424	138641, 1790, 3050
131709, 2563	134531, 1006.4	138679, 2396
131798, 619	134555, 1088	139104, 2636
131870, 1006.4	134563, 2779	139147, 2778
131911, 2615	134564, 2766, 2779	139172, 1400
131916, 3061	134565, 2766, 2779	139173, 1400
131938, 2558	134572, 917, 946	139195, 1006B
131940, 3049	134593, 1396, 1402	139232, 3074
131942, 899	134611, 3048	139481, 2644
131984, 921	134885, 685, 933	139488, 2958
132068, 2697	134899, 3048	139811, 2964
132120, 2994	134943, 1088	139880, 1401
132229, 2778	135205, 3073	140011, 1401
132283, 3039, 3045, 3051, 3061	135224, 896, 916	140060, 1006
132387, 1069, 1824	135259, 1251	140061, 1006
132422, 513, 570, 648	135535, 837, 843	140082, 1006.4
	135813, 2956, 2976	140089, 1006.4

## English

140115, 2424  
 140331, 1006A  
 140394, 1005, 1006A  
 140439, 1006A  
 140484, 1006B  
 140527, 2424  
 140784, 2997  
 140796, 2426  
 140797, 2426  
 140831, 3034  
 140833, 1006  
 140844, 1401  
 141041, 3073  
 141058, 2779  
 141091, 2426  
 141210, 2555  
 141661, 1400  
 141712, 2608  
 141739, 2557  
 141864, 1004  
 142038, 2637  
 142150, 1006A  
 142240, 2744  
 142303, 1876  
 142354, 1006B  
 142480, 2410  
 142522, 1399  
 142576, 1399  
 142615, 3047  
 142738, 2549  
 142806, 2778  
 142874, 1004  
 143151, 2708  
 143180, 2883  
 143230, 2897  
 143253, 2637  
 143280, 2701  
 143341, 1006A  
 143550, 1006A  
 143651, 1402  
 143757, 2955  
 143850, 1004, 1006A  
 143854, 1004, 1006A  
 143891, 2994  
 144142, 1400  
 144204, 1931  
 144563, 2626, 2637  
 144869, 1402  
 145035, 2637, 2654  
 145058, 1006A  
 145060, 2637  
 145610, 2637  
 145611, 2637  
 145627, 2637  
 145824, 1006A  
 146002, 2637  
 147378, 2637  
 147416, 2637  
 147417, 2637

148124, 1930  
 148125, 1930

## FRENCH

## Application

103588, 1918

## Patents

Feb. 28, 1874, 1086  
 Oct. 13, 1881, 268  
 Dec. 21, 1881, 268  
 Jan. 31, 1917, 686  
 Dec. 6, 1917, 2026  
 2333, 1573  
 3280, 1573  
 3281, 1573  
 3282, 1573  
 4650, 1299  
 5908, 1011  
 6100, 1011  
 6221, 1011  
 6608, 1011  
 7127, 2380  
 7128, 2380  
 7129, 2380  
 7161, 2600  
 7550, 1011  
 7983, 2731  
 8008, 1011  
 8134, 2731  
 9461, 1265  
 9727, 682  
 11203, 1011  
 12134, 1011  
 12671, 2600  
 13001, 682  
 13840, 1011  
 15148, 1011  
 15414, 1011  
 16357, 1011  
 18016, 2885  
 18267, 2009, 2380  
 18809, 1011  
 19301, 812  
 Ad. June 25, 1855, 812  
 19855, 1011  
 20061, 2600  
 22298, 1011  
 22565, 1011  
 22623, 682  
 22837, 1011  
 23046, 1011  
 23159, 1011  
 23343, 1011  
 23616, 1011  
 24234, 2600  
 24814, 2600  
 24965, 2993

24966, 2993  
 25047, 1011  
 25823, 2600  
 26629, 1592  
 28632, 1011  
 28727, 1011  
 29662, 1011  
 29870, 1011  
 30540, 2600  
 31315, 2668  
 31337, 2600  
 31926, 682  
 32264, 2668  
 32308, 682  
 32790, 2668  
 34303, 1011  
 35002, 2993  
 35322, 2600  
 35368, 2573, 2668  
 35827, 2668  
 36191, 1011  
 37165, 2600  
 38214, 2668  
 41098, 2668  
 40568, 682  
 41349, 2384  
 Ad. June 16, 1860, 2384  
 41405, 2384  
 41988, 1011  
 42210, 2668  
 42511, 2668  
 42891, 682  
 43778, 722  
 44254, 1011  
 44709, 1011  
 44902, 2573, 2668  
 45636, 1011  
 45720, 1011  
 46244, 2600  
 46470, 1592  
 46645, 1011  
 47522, 1592  
 47750, 2600  
 48127, 2600  
 50359, 2993  
 50395, 682  
 50826, 1011  
 52144, 2600  
 52253, 682  
 54358, 1011  
 54508, 2600  
 54954, 682  
 55468, 2993  
 56065, 2600  
 56342, 682  
 56860, 1011  
 57028, 1011  
 57430, 682  
 57480, 1011

58135, 2600	98047, 1893	157728, 1603
59356, 2380	99589, 1621, 2032	157754, 274
60537, 2887	103987, 1302	157811, 2712
61927, 1011	105161, 2380, 2920	159214, 1788
61976, 2880	Ad. Oct. 21, 1874, 2920	161084, 2982
62285, 457	Ad. Mar. 30, 1875, 2920	162965, 2380, 2615
62618, 457	Ad. May 4, 1875, 2920	163102, 2676
62759, 457	Ad. Aug. 17, 1875, 2920	163256, 2946
65551, 2851	Ad. May 6, 1876, 2920	164792, 2943
68271, 457	106658, 457	165349, 2380, 2621
68368, 457	107820, 4019, 1024	165905, 477, 479
68595, 2496	109053, 2039	166874, 1810
69065, 457	109449, 2023	167083, 2380, 2747
69079, 1605, 2095	110571, 1624, 2025, 2380,	168189, 1788
69356, 2380, 2661	2706	168742, 228
70176, 457	114381, 457	171952, 2380
70223, 457	114927, 457	171958, 420
70771, 457	115120, 2380, 2649	172207, 2380, 2621
71285, 1618, 2380	116114, 457	172309, 1875, 1876, 2380,
71871, 2380, 2661	117007, 2380	2956
73110, 1693	122550, 1893	177524, 2380, 2659, 2691
71881, 2380, 2755	123556, 195	179452, 1787, 2963
75542, 457	Ad. Jan. 24, 1879, 1893	180555, 1851
76215, 2380, 2661	123739, 2039	183828, 2961
77064, 457	124789, 1629, 1804, 1872,	184247, 2025, 2380, 2610,
77650, 457	2973	2675, 2719
78826, 457	Ad. Dec. 18, 1878, 1804,	184326, 2945
79195, 457	2973	184548, 2380, 2580
79644, 457	125309, 2380	185051, 2980
80194, 457	126339, 1625, 1818	185178, 1825
81176, 457	126846, 2037, 2668	185179, 1825, 1854, 2380,
81213, 457	127843, 1616, 2004	2949, 2969
82059, 457	129306, 986	185180, 1825
83061, 2876	129899, 2037	185956, 1851
85369, 2380, 2662	Ad. June 16, 1880, 2037	186801, 1825, 1854, 1876,
85604, 457	129980, 2380, 2887	2380
86144, 2380, 2663, 2676	132495, 2380, 2384, 2577,	188304, 1732
86546, 2380, 2663, 2694	2618, 2661	188560, 1810
86602, 2380, 2574	139714, 2971	189398, 1636, 1693, 2697
86726, 85	141285, 1854, 2803	189947, 2385
1st Ad. Dec. 4, 1899, 85	141345, 2380, 2970	190073, 1635
86843, 457	142447, 1894	191906, 1810
87622, 457	142557, 2888	192181, 330, 1872
88026, 1767	142965, 1853	192369, 1810
88227, 457	144257, 2380, 2661	192683, 1843, 1856, 1857,
88556, 2380	144726, 2039	2380
88898, 2380, 2662	146181, 1631, 1872, 1878	192819, 1785, 2955
89853, 2380, 2575	146202, 2604	194792, 1897, 2251, 2380,
90752, 2664, 2380	146273, 2413	2943
90985, 457	146789, 2380	194803, 1874
91387, 2380, 2674	147325, 1897, 2380, 2944	194905, 751, 1637, 2380
91749, 1620, 2380, 2943,	147499, 2658	195360, 2380, 2441
2984	149444, 689	195634, 2380
94461, 1809	150203, 2712	195654, 2623, 2626, 2636
96276, 1300	151613, 2380	195655, 2380, 2623, 2626,
96530, 1623, 1887, 2082	152285, 1850	2636
96768, 2658, 2664	153684, 2380, 2747	195656, 2380, 2623, 2626,
97175, 2380, 2081	155014, 272	2636
	155745, 2380	195780, 2906

**French**

196095, 328	233727, 2585	278376, 65
197358, 667, 986	238872, 1218, 1221	280393, 1116, 1117
198076, 77	242847, 1858	280647, 1151
198046, 2380, 2049	243546, 3006	280648, 1151
199001, 2380, 2069	243612, 2632	280649, 1151
199148, 2385	243677, 2622, 2632	282135, 1854
199275, 2551	246244, 228	282136, 1854
199494, 2380, 2621	247855, 1900	282320, 2094, 2251, 3024
199724, 1820, 2380	248886, 2681	283496, 1161
200275, 2380, 2049	250338, 2512	283587, 230
201740, 2022, 2380, 2021	252501, 97	283752, 1383
201741, 77, 2380	253192, 696	Ad. 3384, 1383
203191, 1899, 2380	253318, 2442	285459, 1117
203202, 2380, 2621	254680, 2548	285488, 2031, 2093, 2111
203734, 2246	254695, 2676	285955, 231
203741, 2380, 2654	254703, 2625	286692, 85
205239, 1890	255002, 1779	286726, 85
205589, 1223	255563, 1975	286925, 75, 85
206007, 214	256208, 2678	287793, 226
206088, 1132	256854, 2642	287814, 230
206198, 2963	257045, 2638	287924, 226
207361, 478	258287, 2559	287998, 226
207624, 2380, 2621	259625, 228	288640, 1784
207919, 1804, 1811	260678, 1639	288793, 2767
208248, 1820	260915, 3049	289130, 2388, 2497
208258, 2380	261540, 3063	289827, 2585
208405, 2380, 2621	261726, 2633	290405, 89
208464, 2380, 2510	263912, 225	290406, 99
208482, 89	264396, 225	290498, 226
208856, 2380, 2626, 2636	264546, 226	290665, 227
208857, 2380, 2623, 2626, 2636	265009, 225	290843, 2518
	265607, 2457	292705, 2760
211045, 989	267079, 227	Ad. July 22, 1901, 2760
212648, 1825	267450, 225	292893, 2539
212649, 1825	267814, 2112	292939, 2763
212650, 1825, 1853	268971, 225	Ad. Aug. 17, 1900, 2763
213963, 1950	269138, 225	292988, 91, 92, 103
214033, 420	269380, 225	293199, 2681
215355, 2441	269550, 225	293983, 232
216564, 2022, 2621	270437, 225	294020, 2503
216053, 2048	270670, 230	294379, 1781
216840, 420	271025, 840	295238, 1117
217557, 97, 2626, 2650	271145, 3068	295359, 3072
217785, 2503	271250, 2675	295592, 2546
218759, 2673	271509, 225	295677, 226
219538, 2633	271840, 2043	295847, 203
220402, 1212	271842, 2043	296132, 2598
220894, 2957	272718, 71, 75, 92	Ad. 3962, 2598
221204, 2700	272994, 225	296211, 688
221488, 1899, 2621	273906, 2895	296351, 2732, 2735
221901, 2622, 2632	274053, 65	Ad. 1365, 2732
222838, 2611, 2670	274791, 2617	296433, 2595
224460, 2622, 2632	Ad. Apr. 6, 1903, 2617	296811, 2674, 2675
225567, 2621	275161, 2626, 2649, 2753	297067, 226
227034, 3062	276262, 3018	297278, 74
330177, 2731, 2732, 2733, 2734, 2736	276526, 225	297464, 2545
	276941, 226	297767, 1020
231230, 1899, 2621	277031, 226	298031, 2669
232475, 3067	278371, 75, 91, 138	298599, 2696

298781, 1786	309541, 3074	318198, 2724
300191, 2624	309548, 3068, 3060, 3070	318232, 2417
300237, 440	309673, 1151	318307, 2550
Ad. 285, 449	309750, 132, 150	318385, 2754, 2700
300601, 227	309962, 2540	318386, 805
300672, 2544	Ad. Feb. 22, 1902, 2540	318650, 301
300693, 227	309963, 2635	318745, 789, 1313
301522, 2659, 2609	310161, 2850	318770, 1122
301640, 227	Ad. Apr. 16, 1902, 2850	318861, 1116
301649, 2253, 2044	310600, 1802	318932, 1075, 1157
301703, 2538	310942, 2539	319029, 334
301749, 149	311689, 1161	319217, 1909, 2596, 3076
302887, 227	311776, 990	319239, 2556
302908, 76, 3076	312040, 1899	319460, 2731, 2732, 2733, 2730
303065, 2644	312046, 3023	319542, 2542, 2717, 2765
303530, 2637	Ad. 4269, 3023	319724, 3027, 3031, 3036, 3037, 3038
303812, 2532	312087, 2545	Ad. 811, 3027, 3031, 3037, 3038
304112, 2700	312817, 2542, 2553, 3040	319848, 3033
304143, 3079	312846, 2754	319926, 2717, 2754, 2755
304286, 2606	312957, 226	320027, 2550
304530, 1161	313453, 2623	320123, 2719
304723, 132, 149, 150, 504, 3060, 3025	313464, 2639	320133, 2755
304804, 2690	313846, 2754	320162, 297
305088, 2701	313950, 898	320446, 89, 217, 2636
305139, 227	314554, 3073	320451, 2855, 2921
305165, 1895	314607, 2920	320452, 2581, 2963
305237, 227	315106, 2745	320478, 3069, 3077, 3079, 3081
305267, 2642	315938, 3000	320529, 271, 337
305481, 2542	316060, 2397	320498, 870
305662, 227	316061, 2397	320519, 2396
305696, 3001	316062, 2461	320529, 271, 2632
305781, 1383	316226, 1020, 1033	320592, 2417
Ad. 3385, 1383	316229, 2603, 3057	Ad. Apr. 22, 1902, 2417
306197, 226	316500, 149, 150, 3007	Ad. Sept. 10, 1902, 2417
306276, 296	316569, 1780, 2983	320614, 102, 100, 2612
Ad. 3823, 296	2nd ad. June 18, 1903, 1780	320627, 1020
306657, 2252	316582, 481	Ad. 2188, 1020
306826, 227, 3066	Ad. Mar. 11, 1902, 481	320694, 2892
306837, 231	316963, 227, 3066	320735, 2591
307242, 2543	317007, 149, 2399, 2494, 3006, 3024, 3025, 3028, 3030, 3040, 3053, 3058, 3060	320885, 3006
307359, 1291	1st ad. 1425, 3025	320931, 2579, 2755
2nd ad. May 10, 1902, 1291	317008, 2892, 3036, 3041	320991, 2671, 2774
307743, 1788	317094, 2655, 3067, 3071	321225, 927
307800, 226	317543, 695	321275, 1152
307918, 2008, 2944	317544, 895, 897, 911, 986	Ad. 3778, 1152
307951, 2684	Ad. Apr. 4, 1902, 911, 986	321397, 2893, 2899
308044, 2601	317607, 2754	321437, 2724
Ad. 1167, 2601	317804, 2518	321438, 2724
308117, 227	317844, 1779	321490, 2761
Ad. April 15, 1901, 2538	317894, 1789	Ad. Oct. 16, 1902, 2760, 2761
308372, 2538	Ad. 333, 1789	*321507, 2732, 2737
308446, 5	317903, 2417	321573, 1122
308506, 132, 140, 150, 3025	318129, 2422	321651, 2686, 2718
308715, 92, 102, 106		321654, 2598
308836, 2767		
309244, 227, 3066		



## French

- 321746, 2524  
 321803, 2595, 2645, 3059  
 1st ad. Sept. 9, 1902, 2595  
 2nd ad. Jan. 9, 1906, 2595  
 321821, 2500, 2620  
 321842, 456  
 321851, 2525  
 321860, 682, 687  
 321863, 2416  
 321864, 2525  
 321878, 2528  
 322028, 227, 3065  
 322177, 295  
 322206, 415, 428  
 322258, 2596  
 1st ad. July 1, 1902, 2596  
 322301, 2647  
 322457, 1780, 2578  
 322506, 2520  
 322554, 2760  
 322557, 3072  
 322600, 682, 687, 688  
 322834, 1107  
 322921, 300  
 322946, 1784, 2955  
 Ad. Oct. 28, 1902, 1784  
 322994, 2947, 2966  
 323032, 919  
 323252, 1206  
 323397, 1448  
 323473, 3067, 3071, 3073  
 323474, 2655, 3064, 3067, 3071, 3073  
 323475, 149, 217, 3071, 3077  
 323491, 1108, 1117  
 323529, 2724  
 323760, 693, 882, 986  
 323950, 2596  
 324076, 227, 3065  
 324097, 688  
 324121, 1790, 2399, 2676, 2753, 3020, 3030, 3042  
 324460, 688  
 324718, 150, 3042  
 324751, 1116  
 324778, 2417  
 324813, 2878, 2882  
 324848, 227, 3065  
 324859, 1292  
 324862, 3000, 3053  
 324894, 2590, 2720, 2754  
 325013, 2997  
 325196, 1832  
 325239, 3065  
 325244, 693, 882, 986  
 325336, 1787  
 325507, 2955  
 325509, 2724  
 325548, 2536  
 325585, 2538  
 325659, 2562  
 325790, 2724  
 325794, 2724  
 326037, 2958  
 Ad. Oct. 31, 1902, 2958  
 326174, 2731, 2732, 2736  
 326286, 429  
 326313, 5, 168, 274, 328, 563  
 326321, 1122  
 326463, 3057  
 326468, 2920  
 326576, 2754, 2755, 2760  
 326722, 2649  
 326850, 1203  
 326851, 1203  
 326891, 2733, 2737  
 327046, 296  
 327136, 297, 328, 1878, 1880  
 327176, 2637  
 327301, 2625  
 327803, 1956, 2079  
 327868, 2955, 2970, 2984  
 328009, 2518  
 328031, 931, 936  
 328054, 1787, 1789, 2069  
 Ad. 1304, 1789  
 Ad. 1775, 1789  
 328143, 2416  
 328179, 3071, 3078  
 328221, 2734  
 328245, 682, 688  
 Ad. 4007, 688  
 328293, 456  
 328357, 2578, 2588  
 328368, 2652  
 328415, 945, 946  
 328420, 2417  
 328600, 682  
 328658, 2551, 2754  
 328770, 682, 687  
 328984, 682, 687  
 329107, 294  
 329117, 3060  
 329445, 294  
 329540, 2558  
 329854, 2570  
 329982, 2760  
 330006, 2601  
 330258, 682  
 330283, 2596  
 330308, 926  
 330441, 1020  
 Ad. 3632, 1020  
 330521, 1107  
 330666, 1358  
 330714, 3024, 3042, 3053  
 330753, 3063  
 330914, 451  
 331012, 227  
 331061, 460  
 331066, 2977  
 331067, 2977  
 331176, 297, 328, 1873, 1878, 1880  
 331289, 1107  
 331331, 927  
 331404, 2629  
 331819, 2542, 2755  
 331897, 1129, 1300  
 332021, 2673, 2678  
 332087, 2555  
 332181, 2782, 2733, 2734, 2736  
 332182, 2734  
 332183, 2734  
 332184, 2732, 2733, 2734, 2736  
 332223, 2596  
 332236, 2731, 2732, 2733, 2736  
 332337, 2731, 2732, 2733, 2736  
 332515, 3067  
 332591, 945, 946  
 332620, 2416  
 332636, 3072  
 332662, 682, 688  
 332811, 682, 688  
 Ad. 2277, 688  
 333078, 227  
 333094, 1020, 1023  
 Ad. 2096, 1020, 1023  
 333110, 455  
 333246, 2624  
 333259, 2253  
 333285, 1236  
 333443, 2960  
 333652, 2567  
 333824, 2596  
 333835, 2625, 2642, 3078  
 1st ad. Apr. 24, 1907, 3078  
 334154, 415  
 334398, 2621  
 334507, 2636, 2654  
 334515, 3070, 3072, 3073  
 334635, 3070  
 Ad. 2445, 3070  
 Ad. 3366, 3070

335191, 2564, 2567	340790, 2982	343343, 3078
335240, 2733, 2735	340812, 2635, 3071	345370, 456
335229, 943	341013, 2771	345373, 3072
335329, 869	341109, 848, 850	345398, 2771, 2777
335453, 850, 943	Ad. 6484, 848, 850	345405, 2680
335496, 1302	341158, 1783, 2568	345415, 1786
335584, 2771	341173, 2554, 2623, 2630	345535, 2892
335598, 3078, 3082	341407, 2394, 2606	345583, 2900
335671, 2563	341513, 2512, 2528	345632, 303
335692, 870	341556, 2539	345687, 561, 594
335694, 2670, 2677, 2753	341617, 2417	345764, 3009
335801, 2253, 2984	341690, 2554	345777, 2418
336086, 2727	341764, 3002	345827, 300
336174, 2733	341832, 2563, 2567	345909, 870
336278, 1020	341911, 1827, 2954, 2959	346152, 2417
336465, 2753	341927, 1783, 2568	346527, 1081
336507, 1306	342077, 2623	346606, 2416
336637, 2492	342112, 2647	346693, 1899, 2623
336690, 1020, 1031	Ad. 7824, 2647	Ad. 3862, 2623
336677, 2731, 2732, 2733, 2738, 2737	Ad. 19107, 2647	346722, 82, 83
336783, 2979	342117, 1236	346812, 2947
336903, 429	342168, 3002	346834, 1018
336970, 2692, 2719	342169, 3005	347135, 2760
1st ad. 3879, 2719	342265, 294	347270, 2733, 2735
337060, 1779	342315, 2688	Ad. 4701, 2735
337570, 2492	342464, 2676	347303, 1791, 2030, 2581
337693, 2630	342502, 1956	347353, 328, 1873
337695, 2763	342622, 2601	347415, 1206
337733, 2560	Ad. Nov. 17, 1905, 2601	347443, 1779
338330, 301	342655, 2623, 2630, 2635	347444, 2648
338477, 203	343006, 205	347446, 1779, 1786, 2406
338792, 455	343096, 2594, 2652	347493, 2625
338849, 2731, 2733, 2734, 2737, 3059	343156, 1206	347533, 1878
Ad. 1365, 2733, 2734	343464, 2755	347673, 2564, 2567
Ad. 2694, 2731, 2733, 2734, 2737, 3059	343614, 431	347702, 1805, 1875, 1881, 2550
Ad. 2707, 2731, 2733, 2734, 2737, 3059	343907, 1832	347906, 3006, 3028
338931, 2596	343947, 2629	347925, 300
338964, 682, 688	344048, 1785, 2754	347960, 83
338965, 2994	344138, 71, 75, 92	347974, 23
339081, 2762	344501, 1779	348015, 2599, 2614
339233, 2878	344660, 1900, 2626	348137, 2599, 2626
339504, 2532	344692, 273	348189, 682, 693, 986
339504, 3070	344787, 2606	348354, 2626, 2650
339654, 2576, 2863	344845, 2625, 2648	348360, 2652
339685, 2716	344848, 2554	348618, 2545
339730, 682, 696	Ad. May 4, 1905, 2554	348653, 2775
339820, 801	Ad. July 5, 1903, 2554	Ad. Mar. 1, 1904, 2775
1st ad. 339820, 801	Ad. Sept. 6, 1904, 2554	348761, 3062
340266, 2545	345012, 102, 2594, 2645	348807, 2048, 2059
340373, 2168	345033, 2900	348951, 2417
340474, 2168	345044, 293	348992, 455
340475, 2168	345071, 1020, 1031	349134, 1899, 2623
340527, 2012	Ad. 5575, 1020	349227, 250
340563, 3 068, 3070	345138, 2417, 2557, 2648	349292, 1785, 1788
340690, 3087	Ad. 4212, 2557	349398, 2525, 2527
	345196, 2592	349620, 2634, 2638
	345274, 2635, 3072	349782, 2576
	345293, 3072	349817, 2519
	345320, 2635, 3072	

## French

- 349816, 2519  
 349843, 2553, 2649  
 349852, 2518  
 349884, 2576, 2682  
 349885, 3079, 3082  
 349896, 2528, 2533  
 1st ad. May 16, 1901,  
 2528  
 Ad. 4229, 2533  
 349970, 2533  
 349992, 1754, 2961  
 349997, 2555  
 350004, 2878  
 350016, 1278  
 350023, 2769  
 350011, 2612  
 350047, 2557  
 350117, 294  
 350120, 696, 698  
 350149, 2557  
 350180, 2751, 2771  
 350187, 1889, 2899  
 350188, 2624, 2635  
 350220, 80  
 350290, 2623  
 350298, 2557  
 Ad. 5717, 2557  
 350313, 2557  
 350363, 1211, 1246  
 350370, 462  
 350376, 2764  
 350383, 2625, 2636  
 Ad. 5041, 2625  
 350392, 856  
 350442, 3053  
 350619, 990  
 350620, 849, 990  
 50723, 2623  
 st ad. 4445, 2023  
 50888, 83  
 50889, 83  
 50910, 3079  
 50966, 703  
 51008, 2649  
 51048, 271  
 51088, 2642  
 51089, 3068, 3070  
 51200, 90, 2644  
 351207, 99  
 351208, \* 90  
 351265, 1732, 2624  
 351274, 2586  
 351276, 2655  
 351555, 1780, 1782  
 Ad. 4602, 1780, 1782  
 351613, 1293  
 351742, 985, 986, 987  
 351844, 2496, 2612  
 351981, 1020, 1023  
 352090, 849  
 352254, 682, 688, 1062,  
 1087  
 352298, 2555  
 352528, 82  
 352530, 83  
 352556, 850  
 352750, 2543, 2954, 2962  
 352853, 2542  
 352880, 2509  
 352886, 2527, 2531  
 Ad. Apr. 24, 1906, 2527  
 352897, 3017, 3046  
 353028, 1020  
 353065, 2528, 2532  
 353187, 74, 83  
 353467, 682  
 353536, 2748  
 353538, 298  
 1st ad. Oct. 1905, 298  
 353538, 693, 850  
 353730, 297, 454  
 353830, 1020, 1025  
 353919, 2528, 2532  
 353932, 1020  
 Ad. 4890, 1020  
 353973, 2630, 2654  
 353995, 2777  
 Ad. 9861, 2777  
 353997, 295  
 354073, 682, 586, 1283  
 354121, 2612, 2650  
 354336, 2639, 2651  
 354380, 2756  
 354398, 2550, 2621, 2622  
 354424, 1899, 2624  
 354425, 2569, 2627  
 Ad. 6170, 2569  
 354599, 2624  
 354688, 1020, 1025  
 354807, 2461  
 354831, 1206  
 354839, 2755  
 354884, 2492  
 354942, 2754, 2770, 2894,  
 3026, 3027, 3039,  
 3043, 3051  
 Ad. June 8, 1905, 3026,  
 3027, 3039, 3043, 3051  
 Ad. 4898, 2754, 2770  
 355016, 2400, 2624, 2641  
 355064, 86  
 355245, 297  
 355252, 1063  
 355363, 2603  
 355776, 3024  
 355805, 2648  
 355852, 302  
 356323, 2623, 2643  
 356402, 82  
 356404, 2648, 2654  
 356444, 2576  
 356508, 2648, 2763  
 356678, 2556  
 356712, 3066  
 356835, 2554  
 Ad. 5160, 2554  
 356804, 2955, 2985  
 357056, 3068  
 357171, 72  
 357172, 72  
 357221, 986, 992  
 357358, 856  
 357374, 296  
 357432, 205, 2407  
 357473, 3059  
 357555, 1367, 1392  
 357837, 83, 86  
 357896, 2878  
 Ad. 6534, 2878  
 Ad. 6536, 2878  
 358079, 2398, 3007, 3029  
 358171, 682, 850  
 358172, 2763  
 358366, 2736  
 358373, 682, 986, 991,  
 998  
 358619, 2610  
 358696, 206  
 358987, 1899, 2625  
 359001, 2690, 2717  
 359018, 2560  
 Ad. Aug. 27, 1909, 2560  
 359026, 2632  
 359073, 2700, 3082  
 359148, 2731, 2737  
 359239, 314  
 359302, 3065  
 359442, 1372  
 359452, 298  
 359547, 2525  
 359550, 295  
 359625, 1967  
 359768, 2911, 2919  
 360158, 296  
 360180, 2420, 2994  
 360249, 2994  
 360395, 2624, 2641  
 360396, 2624, 2620, 2641  
 360545, 2590, 2693  
 Ad. 6963, 2693  
 360613, 2732, 2738  
 360634, 1218  
 360715, 2420  
 360787, 2960  
 360912, 1789, 2752  
 361005, 295  
 361048, 2655

361061, 83	363519, 2555	366125, 1878, 2766
361121, 2550	363582, 2483, 2582	366126, 2634, 2659
361319, 3060	363604, 1355, 1380	366280, 1020, 1043
361323, 2556, 2624, 2635	363617, 693, 850	366586, 2601
361324, 2021, 2420, 2624, 2635	363618, 693, 850	366793, 72, 2631
361329, 2559, 2624, 2635	363643, 856	366891, 2588, 2677
361333, 2519	363782, 2644, 2651	367026, 2794, 2736
361379, 2395, 2396	363846, 2545	Ad. 1365, 2734
1st ad. 6531, 2396	363893, 927	Ad. 2694, 2734
2nd ad. Mar. 8, 1907, 2396	363922, 2632	Ad. 2707, 2734
3rd ad. Oct. 10, 1907, 2396	363947, 8311	367057, 2539
361391, 2090, 2090	363949, 2648	367124, 919, 920
361534, 451	364066, 72	367316, 3003
Ad. June 5, 1905, 451	364222, 2731, 2732, 2737	367376, 1372
361539, 2771	364225, 2650	367407, 2760
361562, 2589	364269, 2634, 2639	367484, 2722
361568, 2625, 2636, 2651	364279, 1020	367548, 2977
Ad. 5765, 2636	364349, 2005, 2017	367803, 2557, 2626
Ad. 5797, 2625	364413, 1704, 2952, 2956, 2984	Ad. 7409, 2557
361588, 2651, 2651	Ad. 6620 1704, 2952, 2956, 2984	367853, 2567
Ad. 5797, 2651	Ad. 7749 1704, 2952, 2956	367915, 2977
361602, 2594	364414, 2731, 2732, 2733, 2737	367979, 89
1st ad. July 9, 1908, 2594	364444, 2527	367980, 2636
361603, 2550	364559, 2690, 2691	367989, 2492
361610, 2763	364577, 3065, 3066	Ad. 7457, 2492, 2493
361690, 2624, 2625	364604, 2552	Ad. Mar. 18, 1907, 2493
361740, 2683	364641, 2610	368002, 458
361759, 2647	364690, 1781, 2670	Ad. Dec. 12, 1906, 458
361796, 92, 2647, 2765	364911, 74	368004, 1781, 1783, 2753
361808, 1080	364912, 2633	368036, 608
361827, 696	364913, 2633, 2641	368158, 2634, 2644
361866, 1020	364965, 230	368170, 2527
361874, 1020, 1033	364973, 1881	Ad. Feb. 29, 1908, 2527
361877, 2635, 3072	364981, 1978	368190, 2623
361944, 2767	364999, 2983	368344, 2054, 2956, 2964
361954, 2482, 2582, 2894	365046, 302	368393, 2613, 2624
361960, 2624, 2635	365057, 89	368616, 2567
361978, 2533	365070, 850, 882, 891	368704, 2761
362010, 2762, 2764	365099, 86	368706, 88
362170, 2606, 2607, 2609	365104, 424	368709, 3065
362417, 3004, 3005	365224, 1093	368713, 2418
362424, 2690	365285, 3079	Ad. Aug. 27, 1908, 2418
362434, 943	365297, 2545	368715, 882
362611, 2554	365314, 2881	368716, 882, 986, 993
362956, 2515, 2531, 2532	365595, 203, 205	368717, 882
362986, 80	365619, 2483	368738, 3011, 3018
362989, 1784, 2767, 2777	365709, 2967	368766, 2753, 3020
363012, 2688	365776, 92, 2640, 3069	368768, 2541
363086, 2855, 2863, 2919	365816, 2532	369043, 2565
363090, 2539	Ad. 6354, 2532	369089, 1020, 1033
363150, 2722	365834, 431	369123, 2650, 3009, 3011, 3053
363157, 699, 986, 989, 1355	365866, 301	369170, 1899, 2025, 2626
363279, 294	365974, 2530, 2532, 2533	369220, 2606, 2609
363506, 1783, 2567, 3023	366106, 2544	369257, 2532
	366112, 300	Ad. 7217, 2532
		369371, 2956
		369387, 703, 720, 850

## • French

- 369402, 2654  
 369440, 2527  
 369808, 312  
 369616, 2407  
 369635, 2655  
 369657, 293  
 369794, 2524  
 369797, 2552  
 369957, 2623  
 369973, 89, 2623, 2653  
 370093, 2420  
 370132, 2543, 2962  
 370170, 1303  
 370224, 2391  
 370240, 2391  
 370293, 2519  
 Ad. Dec. 17, 1906, 2519  
 370354, 2733, 2736  
 370420, 927  
 370505, 3071, 3083  
 370547, 301  
 370717, 2635  
 370741, 2637  
 370893, 1020, 1032  
 370908, 2635  
 370977, 682, 696, 986  
 371136, 1873  
 371284, 2733, 2737  
 371356, 3012  
 371357, 3009, 3037, 3053  
 371358, 2999, 3059  
 371397, 682, 850  
 371447, 2398, 3007, 3029, 3053  
 371544, 1372, 2556, 2623, 2624  
 371683, 2577  
 371685, 1389  
 371688, 991  
 371797, 985, 986, 993  
 Ad. 8459, 985, 986  
 371883, 882  
 371985, 2556, 2557  
 372002, 72, 2631  
 372018, 2670, 2754  
 372099, 682, 688, 1031  
 372211, 2701  
 372267, 2390, 2554, 2963  
 372512, 2539  
 372524, 2553  
 Ad. Mar. 3, 1906, 2553  
 372538, 2731, 2733, 2736  
 372539, 2731, 2732, 2733, 2734, 2736  
 372540, 2731, 2733, 2734, 2736  
 372584, 104, 3082  
 372590, 2754  
 372603, 2444  
 372644, 1291  
 372714, 856, 3004  
 372888, 2554  
 372889, 2554, 2649  
 372903, 2407  
 373088, 88, 2630  
 373174, 453  
 373182, 300  
 373273, 2756  
 373326, 1389  
 373326, 1357  
 373327, 302  
 373407, 2766  
 373429, 90, 2624  
 373756, 2762  
 373615, 2624  
 373668, 302  
 Ad. Aug. 31, 1906, 302  
 373721, 300  
 373854, 2390  
 373887, 2634, 3073  
 373906, 2884  
 373947, 2623  
 373994, 3011, 3018, 3037  
 374114, 2765  
 374123, 3067  
 374164, 2569  
 374179, 2421  
 374237, 882, 986, 994  
 Ad. 10023, 882, 986  
 374238, 882  
 374277, 86  
 374278, 882  
 374327, 882  
 374370, 149, 3012, 3018, 3019  
 374395, 1786, 2676, 2755  
 Ad. 8760, 1786  
 374469, 1020  
 374519, 1092  
 374724, 92, 231, 2639, 2649  
 Ad. 8122, 2639  
 Ad. 9904, 2639  
 Ad. 10760, 2639  
 374790, 2634  
 374883, 2761  
 374902, 818, 986  
 374932, 2957  
 375007, 2526, 2527  
 Ad. 7938, 2526  
 Ad. May 16, 1907, 2527  
 375030, 2715  
 375068, 230, 3066  
 375092, 2494, 3019, 3021, 3058  
 375268, 882  
 375117, 1209, 1210  
 375268, 882  
 375314, 2407  
 Ad. Apr. 3, 1907, 2407  
 375342, 918, 923  
 375349, 697, 850  
 375357, 927  
 375393, 2712  
 375429, 2731, 2732, 2733, 2734, 2736  
 Ad. 7983, 2732, 2733, 2734, 2736  
 Ad. 8134, 2732, 2733, 2734, 2736  
 375433, 2891  
 375469, 1030  
 375564, 2607, 2609  
 375590, 2528  
 375633, 2636, 3067  
 375737, 2772  
 375739, 2732, 2736  
 375741, 2733, 2736  
 375827, 2655  
 375897, 2524, 2530, 2533  
 375979, 482  
 376065, 88  
 376262, 150, 2099, 3015, 3016, 3031  
 376269, 2518  
 376339, 2932, 2983  
 376340, 2982  
 376399, 1779  
 376534, 1030  
 376543, 1020  
 376578, 2009  
 Ad. 9194, 3009  
 376629, 1111, 1120  
 376767, 452  
 376785, 2556, 2558  
 376894, 568  
 376897, 2530  
 376934, 1342  
 377010, 2543, 3029, 3041  
 377039, 2577, 2860  
 377118, 2643, 2655  
 Ad. 9067, 2655  
 377199, 696, 704  
 377311, 2524, 2529  
 377325, 87  
 377326, 87, 2644  
 377424, 2635, 3072, 3074  
 377425, 2003  
 377442, 693  
 377494, 2630, 2643  
 377579, 2899  
 377619, 2633  
 377673, 3066  
 377671, 2539  
 377673, 2558, 2621  
 Ad. July 27, 1906, 2621

- 377827, 1031
- 377913, 2717
- 377926, 2518, 2580, 2532, 2533
- 377979, 5, 2650
- 378143, 1898, 1899, 2623, 2629
- 378304, 2731, 2732, 2733, 2737
- Ad. 7983, 2733
- Ad. 8134, 2733
- 378305, 2751, 2856
- 378454, 1224, 1268
- 378518, 2419
- Ad. Nov. 8, 1907, 2419
- 378641, 2594
- 378643, 2620
- 378988, 2417
- 378991, 2567
- 379000, 89
- 379039, 2553
- 379150, 2603
- 379421, 2894
- 379430, 2513, 2533
- 379437, 682, 850
- 379497, 2833, 2910
- 379509, 2004
- 379559, 1020, 1431
- 379565, 1062
- 379589, 2582, 2585
- 379687, 2527
- 379689, 2762
- 379935, 90, 2660
- 380059, 882
- 380060, 882
- 380108, 2961, 2963
- 380121, 682, 696, 986
- 380134, 2880
- 380190, 697, 699
- 380210, 2678
- 380270, 2646, 2651
- 380275, 2558
- 380310, 2419
- Ad. July 25, 1908, 2419
- 380352, 2173
- 380358, 125, 201
- 380467, 603, 850
- 380515, 2776
- 380614, 720, 722, 850
- 380680, 425
- 380740, 2596
- 380884, 850, 943, 895, 998, 1115
- 380996, 1871
- 381038, 1081
- 381039, 1081
- 381195, 2577, 2586
- 381226, 2533
- 381303, 790
- 381462, 298
- 381484, 1874
- 381503, 2550
- 381529, 2558
- 381637, 2894
- Ad. 8401, 2894
- 381664, 2768
- 381663, 790, 1300
- 381939, 86
- 382001, 3005
- 382081, 1182
- 382122, 2762
- 382179, 1124, 1396
- 382188, 931
- 382211, 2733, 2735
- 382250, 2675
- 382260, 2731, 2735
- 382262, 1224, 1280
- 382270, 2542, 2675, 2755
- 382272, 2647
- 382309, 3080
- 382339, 3003, 3005
- 382350, 2542, 2755
- 382367, 2462
- 382439, 293
- 382603, 2589
- 382718, 2624, 2635
- 382743, 931
- Ad. Oct. 11, 1907, 931
- Ad. Oct. 12, 1907, 931
- 382790, 2519
- 382859, 79, 2647, 2649
- 382900, 1213
- 383062, 4493
- 383064, 3013, 3056
- 383078, 699
- 383099, 331
- 383136, 699
- 383149, 2523
- 383411, 76, 3069
- 383412, 76, 2554
- 383413, 76
- 383419, 2531
- 383478, 2519
- 383555, 2391, 2624
- 383557, 2531, 2533
- 383558, 2531, 2533
- 383636, 2642, 3038, 3055
- Ad. Apr. 5, 1909, 3038, 3055
- 383776, 266
- 383822, 2594
- 383902, 415
- 384072, 1076
- 384079, 2392
- 384111, 2894, 2899
- Ad. 8470, 2899
- Ad. 8471, 2899
- Ad. 8474, 2899
- Ad. 9465, 2899
- 384112, 2683, 2894
- Ad. July 6, 1907, 2683
- Ad. 8470, 2894
- Ad. 8471, 2894
- Ad. 8474, 2894
- Ad. 9465, 2894
- 384206, 2894
- 384350, 1073
- 384425, 2660, 2769
- 384870, 870
- 384904, 1075
- 384907, 1020, 2554
- Ad. 9760, 1020
- Ad. 9761, 1020
- Ad. Sept. 2, 1908, 2554
- 384934, 2634, 2650
- Ad. Mar. 17, 1911, 2650
- 384955, 2523, 2530
- 385015, 197
- 385019, 3081
- 385083, 78, 89, 90, 91, 2600, 3069
- Ad. 9252, 78, 90
- Ad. Apr. 29, 1908, 3069
- 385136, 2419
- 385153, 2692, 2772
- 385179, 3011, 3018, 3019, 3026, 3027, 3035
- 385180, 3011, 3019, 3026, 3027, 3035
- 385193, 682, 703, 849, 850
- 385270, 303
- 385341, 2523, 2531
- 385342, 2978
- 385352, 2523, 2532
- 385381, 3080
- 385459, 2764
- 385569, 696, 709, 900
- 385605, 696, 900, 986
- 385700, 2526, 2530, 2531
- 385900, 2607, 2620
- Ad. Mar. 9, 1908, 2607, 2620
- 385944, 293
- 385957, 2634
- 386011, 2762, 2776
- 386059, 870
- 386109, 2625
- 386181, 2398
- 386339, 87, 2631, 2653
- 386347, 2525
- 386424, 2407
- Ad. June 10, 1908, 2407
- 386549, 2596
- 386552, 2527, 2530
- 386627, 2659, 2768
- Ad. 11628, 2659

## French

386628, 2768	386876, 2596	Ad. Dec. 6, 1908, 256
386629, 2768	386898, 1300	394492, 2758
Ad. 11628, 2768	390178, 2628, 2630, 2640	394494, 298
386634, 1081	390323, 1072	394557, 682, 850
386672, 1204	390327, 2565	394586, 2636, 3069
386695, 1074	390381, 2953	394614, 2770
386783, 986, 1000, 1392,	390422, 2565	394739, 1225
1423	390572, 2893, 2902	394802, 456
386833, 2558	390713, 2776	394881, 687
386845, 2755, 2803, 3051	390807, 1372	394926, 1020
386846, 2681, 2693, 2719	390838, 1072	395164, 2751, 2880
386928, 2524, 2529, 2530	390922, 2607	395165, 2682
386966, 2958	391057, 206	395219, 2899
387001, 857	391109, 1020, 1031	395223, 79, 2630
387002, 857, 2774	391499, 2555	395250, 327
387053, 2523, 2532	391693, 850, 931	395402, 2646, 3082
387054, 2556, 2621	391785, 2879	Ad. 11354, 2646, 3082
387082, 2774	391822, 696	Ad. 12620, 2646
387104, 295	391826, 2735	395535, 1825
Ad. Sept. 3, 1908, 295	391897, 2894	395657, 2773
387179, 2391, 2536	392011, 2530, 2533	395665, 2894, 2899
387325, 2553	392159, 2533	395694, 1206, 1209, 1212
387429, 2762	392179, 2644	395671, 2419
387438, 1020, 1026, 1030	392182, 2518	396161, 693, 986
387456, 1090	392270, 2613	396244, 2523, 2527
387537, 1780, 1950	392247, 2525, 2526	396290, 724
387539, 2531, 2532, 2533	392395, 2772	396305, 2646
387594, 2556	Ad. 10415, 2772	Ad. Dec. 2, 1908, 2646
387736, 432	392400, 3066	396367, 982, 986
387791, 2894, 2898	392442, 88, 2623, 2625,	396375, 693, 857
387828, 2879	2635	396467, 3057
387838, 2748	392505, 2493, 2617	396647, 295
387874, 682	392536, 2596	396664, 2554, 2629
388007, 2550, 2715	392670, 696, 878, 901	Ad. July 9, 1908, 2554
Ad. 9309, 2550	392750, 293	396759, 2901
Ad. 10613, 2550	392781, 2682	396814, 2618, 2709
398191, 1020	392870, 2682	397026, 2898
398276, 986, 987	392868, 80	397051, 2773
398281, 636, 706, 719	392869, 77, 86	397080, 1386
398276, 870	392978, 2776	397092, 2419, 2598
398278, 3067	393224, 2751	397161, 2518, 2531
398305, 700, 701	393296, 2879	Ad. Aug. 10, 1909, 2531
398308, 696	393310, 2518, 2672	397429, 1784, 3033
398441, 2647, 2762	393336, 213	397450, 1063
398748, 301	393412, 2626, 2650	397576, 297
398755, 2894, 3051	393461, 1302	397707, 2008
398756, 2899	393478, 2528	397791, 2556, 2650
398915, 3074	393504, 2518	Ad. July 16, 1909, 2556
399032, 1122, 1129	393526, 3004	Ad. 11267, 2650
399039, 3003, 3004	393589, 1075	397666, 882
399059, 911, 986	393627, 2894	397953, 1086
399065, 3003	393628, 2894	398028, 2586
399071, 2526, 2527	393665, 1290, 1303	398084, 2589
399092, 2518	393963, 3025, 3030, 3033,	398212, 1385
399112, 719	3044, 3080	398263, 2582
399284, 3070, 3071	394009, 2629	398361, 2525, 2528
399327, 2528	394167, 424	398424, 88, 90, 696,
399500, 704, 916	394234, 303	2630, 2643, 3074
399664, 696	394467, 2509	398628, 3061

- 398672, 2078  
 398738, 857, 896, 986  
 398881, 2525  
 399122, 2681, 2698  
 399218, 2625, 2634  
 399360, 2790  
 399460, 92, 3071  
 399727, 2632  
 399832, 696  
 399904, 228  
 399911, 74  
 400030, 1129, 1300  
 400051, 2738  
 400180, 2568  
 400221, 72  
 400252, 2738  
 400285, 1790, 2755  
 400305, 814, 985  
 400308, 682, 986  
 400321, 87, 2631, 2649  
 Ad. 10723, 87, 2631, 2649  
 400378, 2596  
 400444, 2596  
 400577, 3009  
 400652, 149, 3017, 3031, 3053  
 400745, 882  
 400739, 2891, 2899  
 400771, 882  
 400895, 943  
 400907, 2576  
 401004, 227, 3065  
 401023, 1033  
 401067, 1020, 1034  
 401182, 2554  
 401228, 3042, 3051  
 401262, 2557  
 401283, 2681  
 401343, 2623  
 401527, 1779  
 401741, 75, 77, 2648, 2654  
 401856, 3072  
 401912, 2893  
 401926, 1772, 2559  
 Ad. May 4, 1911, 1772  
 401961, 2602  
 402012, 695, 850  
 Ad. 12414, 850  
 Ad. 12656, 850  
 402028, 2598, 3027, 3029, 3035, 3038, 3043  
 402051, 2567  
 402058, 2564, 2567  
 402060, 426  
 402072, 2753, 3020, 3030, 3051, 3056  
 402078, 986, 990, 1375  
 402079, 985, 990  
 402083, 3029, 3034, 3051  
 402125, 86  
 402163, 2681  
 402197, 564, 1875  
 402331, 201, 314, 2420  
 402460, 2620  
 402462, 285, 2624  
 402569, 1787, 1789  
 402622, 2645  
 402624, 2717  
 402693, 2945, 2967  
 402710, 2679  
 Ad. 12713, 2679  
 402804, 3064  
 Ad. 10929, 3064  
 402871, 196, 314  
 402907, 2775  
 402950, 2390, 2624  
 403023, 300  
 403151, 293  
 403193, 79, 2646  
 403242, 2633  
 403243, 2633  
 Ad. 13215, 2633  
 Ad. 13253, 2633  
 403264, 2624, 2637, 2639  
 Ad. 11164, 2637, 2639  
 Ad. June 27, 1909, 2624  
 403427, 2631  
 403488, 88  
 403518, 270, 272, 344, 513  
 Ad. Sept. 2, 1909, 270  
 403520, 2307  
 403536, 847  
 403724, 230, 3066  
 403761, 3057  
 403777, 687  
 404037, 328  
 404071, 1206, 1229, 1287, 1305  
 404230, 703  
 404360, 2418  
 404372, 83, 87, 2640  
 404630, 696, 699, 720  
 404708, 1229  
 404720, 700, 703, 986  
 404795, 2648, 2899  
 404866, 2548  
 405096, 1020  
 405187, 205, 391  
 405293, 149, 150, 3015, 3016  
 405307, 2894  
 405429, 2893  
 405430, 3082  
 405463, 693, 696  
 405493, 682, 850  
 405551, 231  
 405571, 71, 88, 92, 2650  
 405684, 329, 2590  
 405711, 391  
 405712, 857  
 405819, 1460  
 405822, 2961  
 405881, 2764, 2682, 2684  
 Ad. 14829, 2684  
 406005, 2519  
 406084, 430  
 406115, 695, 850  
 Ad. 12415, 850  
 406139, 86, 2752, 2765  
 406149, 2717  
 406344, 2636, 3072  
 406442, 882  
 406514, 297  
 406527, 2560  
 406528, 2560  
 406529, 2562  
 406624, 2760  
 Ad. Nov. 25, 1909, 2760  
 406641, 1219, 1221, 1224, 1299  
 406686, 2770  
 406722, 344  
 406724, 2632  
 Ad. 11840, 2632  
 406744, 3072  
 406806, 839, 986, 996, 1424  
 406943, 856, 857  
 406969, 845, 904, 985, 986  
 407046, 3000  
 Ad. Oct. 16, 1909, 3000  
 Ad. Dec. 29, 1910, 3000  
 407092, 2589  
 Ad. 12922, 2589  
 Ad. 13035, 2589  
 Ad. 18507, 2589  
 Ad. 19255, 2589  
 407133, 882, 994  
 407164, 932, 934  
 407345, 2626  
 407610, 568  
 407654, 2677  
 407844, 302  
 407846, 1783, 2542  
 407862, 2581  
 407914, 1152  
 407932, 3057  
 408065, 2529, 2533  
 408082, 2123  
 408106, 2533  
 408229, 205  
 408253, 1028



## French

- 408299, 205  
 408303, 2638  
 408370, 232, 2538, 2645,  
     2660, 3032, 3034,  
     3035, 3036, 3037,  
     3038, 3040, 3041,  
     3053  
 Ad. 12469, 232, 2538,  
     2660, 3032, 3033, 3034,  
     3035, 3036, 3037, 3038,  
     3053  
 Ad. June 11, 1910, 232,  
     2538, 2645, 3032, 3033,  
     3034, 3035, 3036, 3037,  
     3038, 3041, 3053  
 408400, 1782, 2675  
 408417, 1092  
 408512, 1020  
 408554, 2895, 2899  
 408592, 2762  
 409034, 205  
 409078, 2629  
 409194, 696  
 409220, 534, 1963, 2048  
 409387, 2629  
 409405, 3009  
 409513, 701  
 409557, 2534, 2758  
 409614, 298  
 409661, 2671  
 409758, 693, 701  
 409787, 682, 848  
 409789, 83, 2649  
 410111, 2559  
 Ad. 12769, 2559  
 410239, 2905, 2954, 2904,  
     2966  
 Ad. 12430, 2905, 2954  
 Ad. 13235, 2905, 2954,  
 Ad. 18487, 2905, 2954,  
     2964, 2966  
 410267, 2633  
 Ad. 12545, 2633  
 410362, 2649  
 Ad. 12799, 2649  
 410460, 271, 660  
 410473, 2631  
 410489, 2512  
 410555, 2554  
 410556, 1213  
 410652, 1899, 2621  
 410710, 857  
 410721, 2644, 3057  
 410725, 2030, 2894, 3051  
 Ad. 13659, 2030  
 Ad. Mar. 18, 1910, 2894,  
     3051  
 410776, 3073  
 410792, 2592  
 410793, 2765  
 410827, 77, 86, 90  
 410835, 295  
 410882, 2631  
 410933, 682, 688  
 410967, 682, 688  
 410973, 1783, 2030, 2761  
 410986, 2894, 2920  
 411012, 2524  
 411031, 919, 920  
 411126, 3042  
 411298, 3026, 3030, 3037,  
     3042  
 411574, 857  
 411592, 74, 76, 92  
 411674, 856, 857  
 411693, 719, 850, 856,  
     857, 896  
 411785, 693, 696  
 412029, 2943, 2964  
 412227, 695, 696  
 412503, 3051  
 412668, 2523, 2524  
 412710, 2679, 2685, 2717  
 412708, 992  
 412788, 696, 857  
 412797, 3025, 3036, 3038,  
     3045  
 Ad. 12388, 3025, 3036,  
     3038, 3045  
 412887, 2557  
 413097, 301  
 Ad. Jan. 31, 1914, 301  
 413117, 693, 696  
 Ad. 12327, 696  
 413152, 315, 2669, 2767  
 413222, 2921  
 413282, 2511, 2517  
 413289, 2517  
 413359, 2558  
 413421, 857  
 413442, 2553  
 413571, 2556  
 413657, 2540, 3019, 3035,  
     3036  
 413658, 3019, 3035, 3036  
 413787, 3054  
 413821, 2345, 2981  
 413849, 308  
 413900, 2893, 3075  
 413901, 3057  
 414050, 2894, 2898  
 414302, 2898  
 414387, 1091, 1151, 1203  
 414518, 2893, 3075  
 414520, 2632, 3064  
 414594, 2898, 3075  
 414679, 2660, 2774, 3019,  
     3035, 3036  
 414680, 3019, 3035, 3036  
 414726, 848  
 414821, 177  
 414837, 918  
 414925, 987  
 415003, 2629, 2645  
 415048, 2645, 3058  
 415060, 2634  
 415143, 671  
 415160, 2485  
 415188, 301  
 415216, 919, 920  
 415248, 2569  
 415252, 919, 920  
 415338, 1079  
 415517, 1793, 2540, 3032,  
     3037, 3045  
 415518, 3032, 3037  
 415542, 2764  
 415566, 657  
 415594, 693, 696, 715  
 415619, 2633, 3074  
 415737, 2549  
 415749, 882  
 415920, 1072  
 415945, 2582  
 415976, 793, 850  
 415980, 2596  
 415996, 78, 2766  
 416036, 693, 986  
 416064, 2555  
 416213, 2696  
 416224, 682, 696, 730,  
     986  
 416554, 2894, 2920  
 416557, 693, 850  
 416696, 2589  
 416752, 3056  
 416806, 2393  
 Ad. May 7, 1912, 2393  
 416843, 2391, 2537, 2538  
 416877, 856, 857, 896,  
     937  
 416915, 729  
 416988, 1075, 1295  
 417027, 3053  
 417054, 926  
 417166, 985, 986, 991  
 417250, 3026, 3030  
 417274, 2399, 3040, 3030  
 Ad. 18345, 3010  
 417392, 2650, 2766, 2773,  
     3077  
 Ad. 16144, 2766  
 Ad. June 28, 1912, 2650  
 417490, 857  
 417556, 2649  
 417568, 3071  
 417599, 3054

- 417617, 2609, 3058  
 417670, 2722  
 417710, 3001  
 417815, 3003  
 417816, 805, 1297  
 Ad. 13518, 1297  
 417851, 88, 2634  
 417940, 896  
 418009, 2670  
 418059, 856, 857, 896  
 418060, 2759  
 418282, 88  
 418287, 856, 857, 896  
 418309, 3026  
 418347, 2395, 3040, 3046,  
 3058  
 Ad. 15217, 3040, 3046,  
 3058  
 418425, 856, 857  
 418434, 856, 857, 896,  
 904  
 418543, 2607, 2609  
 418518, 1703  
 418584, 104, 293, 564  
 418608, 2643  
 418643, 3006  
 418668, 2524  
 418744, 3038, 3043  
 418825, 857  
 418837, 923  
 418892, 857  
 419061, 2693, 2775  
 419072, 2559  
 419073, 2559  
 419074, 2559  
 419075, 2559  
 419076, 2559  
 419077, 2559  
 419078, 2559  
 419530, 3027, 3028,  
 3029  
 Ad. 13237, 3027, 3028,  
 3029  
 419602, 1206  
 419609, 1287  
 419752, 2559  
 419782, 703, 850, 900,  
 943  
 419852, 3064  
 419871, 1027  
 420044, 2755, 2893  
 420085, 2634  
 420086, 2390, 2557  
 420087, 2650  
 420112, 693, 696, 701  
 420127, 3056  
 420164, 2761  
 420197, 2894  
 420212, 1781  
 420252, 693, 700, 882  
 420319, 2559, 2785  
 420321, 3081  
 420346, 3000  
 420404, 2775  
 420524, 696  
 420543, 2760  
 420555, 3051, 3075  
 420563, 1386  
 420596, 1086, 1088, 1093  
 Ad. Jan. 27, 1911, 1088  
 Ad. 13752, 1086  
 420640, 271  
 420675, 1296  
 420682, 71, 2629, 3075  
 420733, 2561  
 420803, 882, 986  
 420804, 882, 986  
 420856, 2651, 3015, 3017  
 Ad. Mar. 13, 1911, 3015,  
 3017  
 420885, 2589  
 420975, 1072  
 420983, 2899, 2918  
 421010, 1779, 3008, 3026,  
 3029  
 421022, 703  
 421044, 2120, 2422  
 421058, 2394, 2488  
 421119, 2683, 2879  
 421202, 2947  
 421227, 3002  
 421249, 3000  
 421313, 703  
 421314, 2808  
 421423, 2755  
 421677, 2895  
 421843, 2660, 4033  
 421843, 2660, 3043  
 421851, 932  
 421854, 1780  
 421900, 3072  
 421952, 1269  
 422022, 2644  
 422064, 1872  
 422195, 2692  
 422416, 2648  
 422423, 2683  
 422490, 297, 329  
 Ad. Nov. 6, 1911, 297  
 422542, 3016, 3017  
 422565, 76  
 422727, 2967  
 422751, 696, 814  
 422752, 2492  
 422763, 2614  
 422902, 882  
 422968, 2633  
 Ad. 14248, 2633  
 423064, 91  
 423104, 91  
 423197, 3011, 3016, 3017  
 423215, 2768  
 423328, 682, 688  
 423417, 2778  
 423462, 682, 689  
 423510, 73, 74  
 423562, 309  
 423760, 698  
 423774, 91, 2493, 3016,  
 3017, 3018  
 423840, 2894  
 423893, 693, 986, 1292  
 423934, 2630  
 424131, 449  
 424228, 2648  
 424242, 2555  
 Ad. 14084, 2555  
 424247, 225, 3065  
 424269, 1072, 1073  
 424293, 73, 74  
 424419, 91  
 424428, 2643, 2713, 3058,  
 3075  
 424434, 231, 3066  
 424480, 2629  
 424459, 2768  
 424511, 2895  
 424555, 2960  
 424598, 703, 986, 995  
 424621, 91, 2493, 3016,  
 3017  
 424677, 2691  
 424738, 2716  
 424796, 2628  
 424820, 2541, 2764  
 424906, 2827, 2837,  
 2841  
 424997, 2714, 2715  
 425009, 946  
 425099, 855, 856, 857,  
 896, 904, 937  
 Ad. 15984, 896  
 Ad. 10622, 896, 904  
 Ad. May 24, 1912, 855,  
 857  
 425145, 2687, 2690  
 425204, 2896  
 425321, 3003  
 425430, 3003  
 425436, 3054  
 425545, 2700  
 425550, 2979  
 425586, 2879  
 425618, 2777  
 425699, 926  
 425714, 474, 480  
 Ad. Jan. 30, 1912, 474,  
 480  
 425765, 882  
 425846, 2603

## French

- 425900, 3032, 3035  
 425913, 729, 1265, 1288  
 Ad. Aug. 20, 1910, 729  
 Ad. 16691, 1265  
 425952, 908  
 425953, 2632  
 425955, 2632  
 425991, 311  
 425992, 2556  
 425997, 668, 987  
 426000, 3065  
 426089, 91  
 426149, 1075  
 426156, 2597  
 426217, 2637, 2638  
 426251, 2898  
 426285, 2775  
 426307, 719, 937  
 426414, 3065  
 426436, 2999, 3018, 3054  
 426437, 2977  
 426568, 2773  
 426771, 2630  
 426851, 1078, 1081  
 426868, 919, 920  
 426967, 2642, 2643  
 427066, 919, 920  
 427109, 919, 920, 1006B  
 Ad. 17245, 1006B  
 427113, 336, 2649  
 427265, 2399, 3009, 3029  
 427381, 2636  
 427425, 3017  
 427445, 3016, 3056  
 427546, 2662  
 427562, 2628  
 427694, 1890, 2625  
 427755, 2632  
 427804, 2551, 3026  
 427818, 3059  
 Ad. 14044, 3059  
 427834, 676  
 427892, 1020, 1031  
 428019, 1027, 1084  
 428069, 3017, 3031  
 428448, 2895  
 428468, 2540, 2659, 2763  
 428554, 3007  
 428657, 696, 714  
 428664, 2505, 2507  
 428678, 302  
 428748, 1874  
 Ad. 14417, 1874  
 428886, 2690  
 428969, 454  
 429140, 931  
 429166, 2577  
 Ad. Oct. 10, 1910, 2577  
 429292, 2735, 2768  
 429445, 2526, 2528  
 429576, 2775  
 429597, 2512  
 429679, 566, 1879  
 429696, 856, 857  
 429750, 1727  
 429788, 3040, 3046, 3057  
 429827, 2554  
 429841, 74, 76, 2691  
 429879, 2394, 2752  
 429934, 2555  
 430035, 2761, 2765  
 Ad. 14809, 2761, 2765  
 430060, 688, 696, 928  
 430086, 2683, 2899  
 430092, 682  
 430093, 685, 688  
 430111, 882  
 430112, 696, 882  
 430113, 696, 882  
 430145, 1374, 1382  
 430221, 3064  
 430445, 2621, 3069  
 430553, 919, 920, 1006B  
 Ad. 14589, 1006B  
 430595, 944  
 430601, 2577, 2614  
 430606, 3010, 3016, 3018, 3019  
 430807, 2768  
 430822, 919, 920  
 430876, 3073  
 430881, 2766  
 430939, 2582, 2643  
 431006, 999  
 431044, 301, 302  
 431052, 2647, 2762  
 431067, 1092  
 431074, 88  
 431090, 2583, 2614  
 431096, 2632  
 431112, 2632  
 431125, 704  
 431182, 850, 923  
 431241, 1020  
 431295, 856, 857  
 431298, 896  
 Ad. 16353, 896  
 431427, 1206  
 431515, 697  
 431681, 2632  
 431907, 2597  
 431991, 2879, 2921  
 432046, 2399, 3012, 3013, 3025, 3030, 3041  
 Ad. 14558, 2399, 3012, 3030  
 Ad. 14559, 2399, 3012, 3030  
 Ad. 14783, 3041  
 Ad. 15933, 2399, 3030  
 Ad. 15894, 2399, 3012, 3030  
 Ad. 15933, 3012  
 Ad. 16316, 2399, 3012, 3013, 3030  
 Ad. 16494, 2399, 3012, 3013, 3030  
 Ad. Sept. 16, 1912, 2399, 3030  
 432047, 3012, 3035, 3040  
 Ad. 15719, 3012, 3035, 3040, 3045  
 432121, 1072  
 432185, 2614  
 Ad. May 2, 1911, 2614  
 432264, 2538, 3038, 3021, 3026, 3027, 3028, 3030, 3033, 3035, 3036, 3040, 3043, 3047  
 Ad. July 7, 1911, 2538  
 Ad. July 15, 1911, 2538  
 Ad. Sept. 13, 1911, 2538  
 Ad. Nov. 19, 1912, 3026, 3027, 3028, 3030, 3033, 3035, 3036, 3040, 3043  
 Ad. Sept. 12, 1913, 3047  
 Ad. Mar. 4, 1914, 3047  
 Ad. June 30, 1914, 3047  
 Ad. 20264, 3047  
 432400, 2624, 2632  
 432431, 1092  
 432569, 2553  
 Ad. Mar. 20, 1911, 2553  
 432590, 1026  
 432605, 2419, 2422  
 432747, 3007  
 432751, 3009  
 432786, 1363  
 432789, 682  
 432810, 682, 696  
 432863, 2961  
 432873, 1345, 1381  
 432874, 1206, 1339, 135  
 432970, 2766  
 432990, 986, 993, 99  
 433012, 1876, 1880  
 433013, 86, 1876, 1880  
 2692  
 433071, 2710, 2716  
 433115, 3066  
 433148, 2764  
 433168, 255  
 433239, 682  
 433281, 2604, 2620

- 433306, 91  
 433323, 2420  
 433410, 674  
 433424, 293  
 433457, 933, 935  
 433502, 986, 994  
 433710, 3517  
 433725, 428  
 433826, 699  
 433860, 2713  
 433950, 2740  
 433956, 2643  
 433995, 919  
 433999, 3081  
 434065, 3081  
 434112, 2950, 2960  
 434104, 3074  
 434330, 2692  
 434362, 2718  
 434411, 328  
 434455, 2679, 2686  
 434501, 3067, 3069  
 434516, 3065  
 434625, 2916, 2919, 2921  
 434673, 1031  
 Ad. May 2, 1911, 1031  
 434709, 328, 568  
 434523, 2760  
 434602, 2621, 2682  
 434621, 91  
 434673, 1031  
 434791, 2865, 2920  
 434868, 1739, 2625, 2629  
 434869, 2629  
 434949, 2420, 2556  
 434943, 308  
 434953, 929, 933  
 435073, 2556  
 435082, 2898  
 435090, 297  
 Ad. May 15, 1912, 297  
 435156, 86, 2647, 2653  
 Ad. 15008, 2653  
 Ad. Jan. 28, 1911, 2647  
 435197, 140  
 435239, 2762  
 Ad. Dec. 6, 1911, 2762  
 435308, 919  
 435312, 2484  
 435357, 687  
 435397, 682, 683, 850,  
 895, 900, 922  
 435417, 2578, 2680, 2683  
 435497, 949, 986  
 435507, 149, 150, 3007,  
 3013, 3016, 3017,  
 3019, 3021  
 435577, 2648  
 435733, 702, 703  
 435742, 2557, 2558, 3032  
 435763, 1334  
 435868, 2689  
 435895, 330  
 435914, 2420  
 435944, 2768  
 435955, 2768  
 435989, 2637, 2644  
 436087, 2613, 3077  
 436186, 2643, 3074, 3082  
 436187, 2629, 3082  
 436188, 3068, 3082  
 436192, 2600, 2768  
 436201, 850  
 436245, 1787  
 436245, 2768  
 436439, 2254, 2553  
 436440, 2554  
 436472, 856, 857  
 436538, 3044  
 436555, 2559, 2628, 3068  
 436556, 2628, 3068  
 Ad. 15925, 2628  
 Ad. 16058, 2628  
 436590, 2628, 3068, 3070  
 Ad. 15413, 3068  
 Ad. 16055, 3068  
 436680, 857  
 436710, 923  
 436720, 2768, 2769  
 436789, 696, 923  
 Ad. 15151, 696  
 Ad. 15619, 696  
 Ad. 17923, 696  
 436828, 849  
 436895, 2688  
 436936, 79  
 436968, 73, 2653  
 437014, 76, 2654  
 437015, 1034  
 437168, 920  
 437228, 2979  
 437240, 3012  
 437315, 2393  
 437397, 682, 696  
 Ad. 13519, 696  
 437411, 3042  
 437504, 923  
 437751, 2765  
 437789, 923  
 437804, 682  
 437815, 73, 92, 2653  
 437876, 2590  
 438081, 2978  
 438130, 2637  
 438131, 240, 572, 2031  
 Ad. 15390, 240, 2631  
 438209, 919, 1006B  
 Ad. 15344, 1006B  
 438245, 2890  
 438246, 2890  
 438248, 682, 920  
 438418, 1785  
 438448, 2637, 3071  
 438476, 2893  
 438487, 1006B  
 438632, 72  
 438649, 3007  
 438718, 2645, 3068, 3070  
 438774, 2620, 2808  
 Ad. 16653, 2898  
 438775, 2620, 3075  
 438776, 2629  
 438783, 696  
 438905, 927, 3004  
 439040, 3071, 3077, 3078  
 439067, 2387, 2767  
 439244, 925  
 439258, 1020, 1033, 1086  
 439261, 857  
 439286, 269  
 439332, 3080  
 439370, 2767  
 439644, 2684, 2764  
 Ad. 14829, 2764  
 Ad. 16020, 2684  
 439648, 1786, 2583  
 439651, 2762  
 439683, 2396, 2397  
 439721, 2498, 2501, 2624,  
 2630  
 Ad. 16214, 2498, 2501  
 439732, 2395  
 439872, 698  
 440133, 3027  
 440217, 850, 917  
 Ad. 15525, 850  
 440218, 850, 917  
 440221, 2634  
 440329, 296  
 440331, 927  
 440348, 2760  
 440394, 3066  
 440485, 2679, 2701  
 440520, 2730  
 440625, 312  
 440702, 687  
 440733, 2548, 3027, 30  
 440776, 76, 2654  
 440846, 79, 2654  
 440907, 73, 90, 265  
 2653  
 Ad. 15861, 73, 2653  
 440955, 2551, 3034  
 440965, 2633  
 441002, 696  
 441017, 2768  
 441022, 848

## • French

441063, 73, 2691, 2653	444474, 1212	Ad. 17674, 1012
441146, 2895, 3027	444588, 3056, 3075	448364, 2397, 2465
441186, 272, 2421	444688, 1006	448429, 2644, 2648, 2650
441278, 2465, 2468	444703, 294	448496, 203
441304, 1276	444992, 2715	448511, 682, 853
441419, 287	445233, 1080	448519, 849
441481, 2063	445279, 151	448550, 923
441547, 2768	445289, 454	448615, 2690
441551, 2554, 2673	445506, 932	448624, 2863
441555, 1884, 2558, 2584	445542, 933	448651, 2693
441607, 812, 933	445556, 927	448665, 2555
441695, 857	445638, 3059	448808, 2614
441703, 2584, 2610	445768, 1025	448869, 2895, 2904
441706, 719, 850	445770, 2981, 3058	448924, 900
441730, 3005	445787, 2876	448928, 2641
441813, 1295	Ad. July 6, 1912, 2876	449010, 857
441864, 3006	445798, 2753, 3020	449035, 1230, 1266, 1282,
442004, 931	445826, 926	1291
442015, 2636	445833, 2006, 2007	449144, 1073
442019, 89	Ad. Feb. 14, 1914, 2007	449150, 920
442022, 2624, 2634, 2896	445843, 2760, 2704, 2770	449155, 479
442065, 2807	445857, 910	449253, 2541, 3020, 3059
442117, 79	445860, 2702	449350, 306
442259, 1400	445896, 76, 2654	449457, 3072
442280, 1075	Ad. 17170, 76, 2654	449497, 273, 278, 618
442512, 3007, 3044	446008, 449	449536, 3067, 3069
442514, 870	446108, 2714	449554, 2602
442593, 2629	446263, 2391	449604, 2542
442619, 431	446269, 701, 848	449605, 2390, 2542
442630, 2629	446270, 2539, 2675	449606, 2390, 2542
442631, 2629	446348, 2764, 2770	449607, 2390, 2542
442632, 2629	446349, 2770	449774, 2527
442640, 2716	446382, 295	449785, 1871
442738, 3000	446449, 3067	449801, 71, 86, 2645
442809, 305	446560, 687	449802, 86
442850, 300	446627, 3057	449803, 71, 86
442881, 2876	446717, 200, 304	449855, 2648
Ad. Dec. 2, 1911, 2876	446718, 200, 304	449858, 2552
442901, 2485	446840, 2550	449943, 295
443031, 3033	447068, 569, 1879	450140, 900, 920
443043, 2717	447106, 986, 992	450178, 900, 920
443065, 2409	447419, 312	450193, 71, 3075
443133, 90, 102, 105,	447578, 312	450435, 927, 932
329	447628, 3079	450448, 844, 882, 892,
443279, 2765, 2769	447645, 2492, 2542, 3043	992
443406, 2590, 2620	447647, 2769	450461, 2484
443555, 1702, 2948	447654, 2618	450465, 900, 904, 916
Ad. 16836, 1702	447702, 2602	450696, 2633
443620, 731, 1005	447826, 2688	450746, 2760
443621, 2645	447845, 391	450758, 3081
443897, 28, 288, 321,	447969, 2775	450786, 1027, 1087
562	447974, 23, 37	450804, 1062, 1084, 1087,
443923, 2764	448064, 312	1094
443998, 2593, 2607	448072, 3007	450818, 2632
444044, 682	448230, 28	450886, 3012
444159, 2555	Ad. 16642, 28	450890, 3008, 3010
444184, 2764, 3076	448330, 2778	450897, 1859
444455, 856, 857	448342, 3000, 3012	450906, 2632
444462, 92	Ad. Apr. 18, 1913, 3000	450949, 2767

- 450967, 276, 3000  
 450985, 2632  
 451089, 730  
 451156, 3069  
 451182, 1073  
 451268, 208, 2421  
 451276, 2632, 3069  
 451315, 2466  
 451374, 2395  
 451398, 2680  
 451405, 922  
 451406, 73, 2640  
 451423, 1076  
 451515, 990  
 451645, 2523  
 451812, 839, 892, 951  
 451913, 2631, 2637  
 451925, 1858, 1859  
 451957, 297  
 452034, 1020, 1031  
 452154, 2553, 2968  
 452324, 2764  
 452342, 2618, 2680  
 452374, 3007, 3008, 3010 •  
 Ad. 17104, 3007, 3010  
 Ad. Jan. 16, 1913, 3008  
 452395, 451  
 452432, 2533, 2752, 3032,  
 3042, 3043  
 452482, 3081  
 452579, 2671, 2766  
 452677, 2777 •  
 452682, 1223, 1295  
 452684, 3072  
 452727, 2614  
 452900, 2623  
 452920, 209  
 452921, 209  
 452989, 300  
 453099, 916  
 453111, 168, 235, 2639  
 453129, 209  
 453207, 916  
 453307, 301  
 453393, 2770  
 453394, 3081  
 453406, 2390, 2485  
 453470, 1203  
 453559, 2632  
 453564, 3058  
 453569, 2632, 3069  
 453588, 2002, 2026  
 453652, 2625, 2639, 3080  
 453700, 2631  
 453733, 1223, 1290, 1354,  
 1357, 1389  
 453742, 1354, 1357, 1389  
 453835, 3007, 3008, 3014  
 453845, 701, 704, 897,  
 •  
 938, 994, 3085  
 Ad. 18568, 682  
 Ad. 19228, 682  
 Ad. Apr. 17, 1914, 701,  
 994  
 453881, 2766  
 453992, 2526, 2527  
 454011, 91, 2636, 2655,  
 3069, 3075  
 454038, 2714  
 454061, 3068  
 454137, 268, 272  
 454275, 2488  
 454379, 2618  
 454430, 900, 919, 920  
 454456, 424  
 454692, 2898, 3051, 3075  
 454753, 504, 3014, 3021  
 454754, 1909  
 454811, 91  
 454826, 3077  
 454849, 1974  
 454893, 1111, 1300  
 454898, 1120  
 454905, 2765  
 454990, 1020, 1031  
 455005, 1025  
 455011, 2007, 2625, 2655  
 455059, 312  
 455064, 2590  
 455075, 2895  
 455108, 2426  
 455117, 3006, 3008, 3060  
 455215, 2621  
 455345, 664, 2408 •  
 Ad. 17504, 664  
 Ad. Apr. 26, 1913, 2408  
 455370, 2995, 2996  
 455474, 1075  
 455475, 1075  
 455530, 1001  
 455531, 986, 1001, 1005  
 455532, 986, 1001, 1005  
 455787, 2602, 2621  
 455799, 686, 927 •  
 455811, 3057  
 455879, 2555, 2562  
 455905, 1075  
 455959, 2670, 2673  
 455995, 2673, 2761  
 456058, 1020  
 456063, 1401  
 456261, 2613 •  
 456428, 2679  
 456524, 334, 1073, 1080,  
 1082, 1203  
 456571, 2994  
 456765, 935  
 456826, 928, 934,  
 1006.4  
 456571, 198, 310  
 Ad. May 20, 1914, 197  
 456925, 2615, 2919  
 456963, 857  
 457006, 299  
 457130, 2759, 2762  
 457031, 687  
 1st Ad. to 457031, 687  
 457066, 2685, 2715  
 Ad. 17576, 2085  
 457159, 307  
 457245, 1310  
 457525, 933  
 457569, 1122  
 457582, 1006.4  
 457633, 3068  
 457650, 920  
 457723, 920  
 457735, 1006.4  
 457800, 984  
 457838, 2557  
 457843, 2492  
 457853, 1026  
 457925, 2751, 3051, 3058  
 457936, 1276  
 457992, 1006.4  
 Ad. 18022, 1006.1  
 458002, 2588, 2609, 2712  
 458023, 2679, 2689  
 458028, 1020, 1025  
 458031, 920  
 458036, 2589  
 458038, 2579  
 458054, 2642  
 458168, 922  
 458218, 857  
 458263, 3008, 3010  
 458289, 331  
 458309, 2964  
 458372, 2962  
 458413, 1073  
 458442, 1074  
 458511, 1006.4  
 458519, 923  
 458558, 534, 2048  
 458590, 2710  
 458630, 705  
 458645, 2386 •  
 458638, 2687, 2803, 3075  
 Ad. 18813, 2687 •  
 458788, 1032  
 458904, 2769  
 458950, 857, 896  
 458951, 856, 857  
 458979, 3073  
 459006, 2391, 2548  
 459048, 2578, 2614  
 459069, 305

## • French

- 450092, 1387  
 450093, 923  
 450122, 2880  
 450123, 2880, 2890  
 450124, 2880  
 450125, 3068, 3075  
 450187, 2579, 2680  
 450282, 3060  
 450371, 1081  
 450385, 711  
 450406, 330, 2651  
 Ad. 17916, 336, 2651  
 450440, 2002  
 450534, 1036  
 450539, 2546  
 450540, 2546  
 450541, 2546  
 450593, 208, 2421  
 450634, 340, 479, 2422  
 450660, 850  
 450713, 1028  
 450815, 340, 479, 2422  
 450853, 927  
 450870, 2805  
 450922, 2493, 2522, 2538  
 450926, 1086, 1099  
 450947, 2422  
 450972, 37, 2394, 2637,  
 3050  
 Ad. 16144, 3050  
 450979, 1859, 2980  
 Ad. 17491, 2980  
 460014, 1111, 1121  
 460074, 1111, 1121, 1122  
 460084, 2421  
 460085, 209  
 460086, 2421  
 460128, 1072  
 460296, 2777  
 460328, 702, 879, 933  
 460419, 2083  
 460472, 278  
 460553, 2095  
 460557, 697  
 460627, 1362  
 460675, 2777  
 460724, 2882  
 460859, 666, 896  
 460971, 2905, 2996, 2998  
 461007, 2766  
 Ad. 18797, 2766  
 461094, 1784, 2387, 2576  
 461058, 3017, 3047, 3048,  
 3057, 3059  
 461078, 2882  
 461121, 3044  
 461326, 882, 986  
 461432, 2633  
 461450, 3000  
 461452, 817, 986  
 461520, 2394, 2496  
 Ad. Feb. 25, 1914, 2496  
 461544, 3034, 3043  
 461641, 1235, 1236, 1291  
 461734, 2390  
 461785, 2081  
 461900, 3071  
 Ad. 18704, 3071  
 462016, 1363, 1402  
 462126, 2679, 2717  
 462147, 3064  
 462274, 37, 3061  
 462290, 986, 994  
 462349, 1235  
 462429, 312  
 462438, 2537  
 462439, 2537  
 462451, 441  
 462472, 2466, 2485  
 462633, 944  
 462655, 2899  
 462657, 2644  
 462668, 1207, 1291,  
 462681, 302  
 462711, 3023  
 462712, 837  
 462862, 2715  
 462877, 1213, 1271  
 463060, 2590  
 463073, 2638, 2650  
 463149, 2682, 2722  
 463156, 3044  
 463160, 2637, 2639  
 463208, 837, 906  
 463232, 923, 934  
 463390, 920  
 463400, 2612, 2629, 3078  
 463498, 3061  
 463613, 3059, 3071  
 463616, 3042  
 463622, 3059  
 463693, 3071  
 463714, 2064  
 463737, 2882  
 463804, 2711, 2715  
 463821, 715, 1001  
 463825, 1001  
 463830, 1001  
 463859, 882, 892, 989  
 463879, 302  
 463900, 2979  
 463906, 2765  
 464028, 240, 572, 2025  
 464237, 856, 896, 910  
 464285, 910  
 464327, 857  
 464337, 2560  
 464344, 2593, 2770  
 464483, 611  
 464502, 208, 2421  
 464561, 846, 986  
 464601, 418, 480  
 464608, 281, 310, 2555  
 464617, 2392, 2582, 3047  
 464646, 2500  
 Ad. 18975, 2500  
 464692, 944  
 464730, 3065, 3072  
 464750, 687  
 464842, 2465  
 464909, 989  
 464997, 2712  
 464998, 2682  
 465047, 2719  
 465048, 2719  
 465045, 701  
 465048, 2765  
 465058, 1026  
 465082, 2947  
 65250, 2677  
 465274, 2680  
 • 465306, 2763  
 465322, 2636, 3073  
 Ad. 18730, 3073  
 465345, 2588, 2676, 3044  
 465365, 923  
 465379, 928  
 465471, 561  
 465473, 928  
 465494, 987, 990  
 465534, 294  
 465570, 2689  
 465571, 592  
 465586, 2393, 2560  
 465596, 2393  
 465679, 922  
 465732, 273  
 465739, 987  
 465740, 870, 879  
 465771, 2957  
 465807, 918  
 465822, 687  
 465937, 1270  
 465965, 2501  
 466009, 3008  
 466094, 2717  
 466100, 987  
 466102, 944  
 466190, 311  
 466210, 2628  
 466275, 417  
 466276, 417  
 466292, 3073  
 466303, 856, 857, 896  
 466367, 1080  
 466435, 2763  
 466518, 1027

466679, 682  
 466804, 2487, 2468, 2488  
 466806, 594  
 466911, 2615  
 466931, 987  
 466962, 987  
 466963, 921, 932  
 466986, 923  
 466996, 2918  
 467045, 2766  
 467164, 3069  
 467165, 3069  
 467466, 284, 312  
 467515, 2996  
 467592, 941  
 467670, 568, 2638  
 467709, 2690  
 467778, 2996  
 467838, 2421  
 467988, 2899  
 468128, 928  
 468162, 37  
 468188, 208, 2421  
 468241, 2776  
 468337, 92, 2020  
 468376, 2579, 2756  
 468380, 2650  
 468685, 1073  
 468879, 2550, 2773  
 468906, 2012  
 468821, 151  
 468349, 682, 690  
 468380, 3072  
 Ad. Aug. 4, 1913, 3072  
 468879, 3026  
 468963, 3001  
 468968, 1073  
 469017, 2589, 3060  
 469045, 928, 935  
 469046, 928, 935  
 469148, 2706  
 469218, 2902  
 469242, 3065  
 469331, 900, 901  
 469371, 3061  
 469446, 1879, 2639  
 469484, 321, 2026  
 469490, 2387  
 469554, 923  
 469649, 701, 838, 848  
 469694, 2589  
 469768, 309  
 469793, 849  
 469832, 2777  
 469890, 2633  
 469903, 2408  
 469925, 2541, 3031, 3061  
 470041, 2387  
 470042, 2387  
 470092, 2579  
 Ad. 19520, 2579  
 470099, 920  
 470141, 3072  
 470264, 1293  
 470267, 3075  
 470274, 3007  
 470580, 2762, 2763  
 470592, 2955  
 470606, 328, 1880, 2623  
 470652, 1084  
 470726, 2752  
 470743, 2093  
 470765, 2961  
 470810, 2777  
 470916, 916  
 471104, 2584  
 471164, 1859  
 471225, 2996  
 471323, 2634  
 471377, 928  
 471471, 3080  
 471479, 93  
 471581, 2590  
 471620, 296  
 471784, 2425  
 471924, 2770  
 472192, 2755  
 472423, 2394  
 472465, 668  
 472567, 709, 938, 940  
 472671, 2897  
 472772, 446  
 472956, 1020  
 472959, 927  
 Ad. Aug. 30, 1913, 927  
 473126, 3050, 3054  
 473158, 2996  
 474163, 3055  
 473189, 3045, 3071  
 473256, 3068  
 473264, 2961  
 473310, 1078  
 473380, 2607  
 473382, 2589  
 473399, 3012  
 Ad. 20072, 3012  
 473433, 812, 817  
 473446, 2623  
 473481, 2554, 2630  
 473550, 2900  
 473603, 2778  
 473618, 897, 900, 920  
 473662, 2589  
 Ad. 20258, 2589  
 473775, 994  
 473918, 927  
 Ad. Oct. 27, 1913, 927  
 473925, 208  
 473985, 9682  
 473986, 2624  
 474023, 682  
 474065, 2561  
 Ad. 19023, 2561  
 474086, 2391, 2582  
 474104, 700  
 474107, 698  
 474246, 2994  
 474302, 1207, 1209  
 474306, 1081  
 474322, 920  
 474330, 920  
 474336, 310  
 474365, 920  
 474502, 1209  
 474503, 919  
 474570, 2765  
 474727, 3009  
 484728, 2634  
 474777, 3009  
 474793, 3064  
 474819, 315  
 474820, 920  
 474828, 3001  
 474833, 2093  
 474882, 930  
 474948, 418  
 474964, 943  
 474995, 1381  
 475160, 3013  
 475183, 2995  
 475195, 922  
 475299, 2554  
 475338, 2614  
 475351, 3034, 3049, 3051  
 475760, 2588  
 475792, 480  
 475793, 2644  
 475853, 3001, 3002  
 475908, 920  
 475938, 2421  
 Ad. July 1, 1914, 2421  
 475981, 298  
 475989, 987  
 476121, 920  
 476294, 932  
 476383, 3013  
 476576, 3023  
 476615, 927  
 476633, 987  
 476696, 281  
 476852, 2640  
 476934, 2690  
 476991, 2392, 3045  
 477077, 209, 2421  
 477294, 2394, 2492  
 477343, 2158, 2554  
 477476, 698



## French

477492, 3067  
 477493, 3067  
 477620, 3012  
 477655, 234, 660  
 477684, 2897  
 477726, 892, 949, 987  
 477735, 3069  
 477746, 900, 923  
 477749, 3079  
 477767, 2602  
 477795, 1020, 1027  
 477812, 2421  
 477895, 278  
 477927, 418, 480  
 477995, 300  
 478023, 3013  
 478063, 300  
 478185, 461  
 478315, 2635  
 478436, 3013  
 478600, 2979  
 478832, 927  
 478404, 1899  
 478405, 2559, 2621  
 478435, 2501  
 478461, 2625  
 478641, 2554  
 478884, 2771  
 478886, 920  
 478919, 927, 931  
 478946, 2426  
 478951, 3001  
 Ad. 20261, 3001  
 Ad. 20263, 3001  
 Ad. 20268, 3001  
 478972, 418  
 479236, 456  
 479319, 2776  
 479320, 1370  
 479387, 2500, 3032  
 479492, 699, 849, 1001  
 479656, 2996  
 Ad. 20201, 2996  
 Ad. 20202, 2996  
 479990, 2513  
 480205, 987  
 480230, 2577  
 480294, 1075, 1108  
 480501, 2602  
 480345, 1027  
 480606, 1875  
 480809, 2602  
 480904, 2604  
 480939, 2608  
 481037, 2423  
 481038, 2423  
 481131, 1265  
 481149, 2881, 2896  
 481471, 1207

481561, 2638  
 481767, 790  
 481846, 1094  
 481900, 2608  
 481901, 2608  
 481917, 312  
 482239, 3048  
 482250, 923  
 482668, 686  
 482898, 2602  
 483316, 3014, 3045  
 483344, 934  
 483618, 906  
 483622, 2537  
 483881, 1002  
 483915, 2775  
 484322, 2745  
 484323, 2425  
 484442, 95, 271  
 485135, 2755  
 485455, 900  
 485726, 933  
 485771, 297  
 486323, 330  
 486591, 3002  
 486916, 2513  
 487070, 177  
 487411, 2995  
 487412, 2995  
 488821, 898  
 488822, 898  
 488444, 687  
 488991, 2607  
 488993, 2607  
 488994, 2607  
 489330, 102, 103  
 490935, 2022  
 490948, 2320  
 491352, 2553  
 491353, 2553  
 492366, 1214  
 492379, 879  
 493692, 1392  
 494441, 1854  
 498462, 2692  
 545275, 2468

## GERMAN

D. R. G. M.

3139, 1235  
 216323, 1977  
 475506, 2668  
 475507, 2668  
 476715, 2668  
 478097, 2668  
 484388, 2668  
 484390, 2668

498495, 1302  
 504171, 2668  
 509643, 2634  
 511610, 1975  
 518856, 2668  
 518910, 2668  
 519746, 2668  
 540313, 2668  
 541504, 1225  
 547071, 2633  
 549805, 1402  
 549806, 1402  
 549845, 1402  
 550018, 1402  
 550019, 1402  
 550020, 1402  
 550784, 1402  
 552857, 2668  
 553651, 1402  
 559226, 2668  
 559644, 1241  
 560918, 1241  
 573710, 1269  
 574423, 1400  
 577184, 2668  
 577590, 2668  
 579954, 2668  
 584388, 2668  
 584389, 2668  
 588550, 2668  
 588779, 2668  
 604182, 2668

## Applicative

Jan. 18, 1910, 1152  
 Sept. 1910, 1152  
 March 7, 1912, 1028  
 June 21, 1913, 990  
 June 28, 1913, 3053  
 June 25, 1913, 3012  
 June 12, 1914, 3012  
 June 12, 1915, 3013  
 4724, 274  
 5109, 225  
 5358, 2012  
 6850, 231  
 7215, 218  
 9620, 225  
 10332, 3070  
 10798, 225  
 12045, 232  
 12196, 225  
 14884, 3070  
 15180, 1073  
 15330, 3068  
 21427, 228  
 21633, 226  
 22188, 232

24533, 3056	A	30190, 2768	B	74226, 1151
25102, 232	A	30577, 884	B	77452, 2994
25533, 3051	A	31188, 884	B	78007, 900
26012, 232	A	31189, 884	B	79367, 1302
26083, 232	A	31716, 884	B	86790, 2545
26485, 2024	B	10658, 3064	C	3408, 214
26613, 87	B	16319, 896	C	12963, 3009
26679, 87	B	17109, 3025	C	17336, 943
29181, 2998	B	40529, 2529	C	17392, 3082
32134, 1005	B	50757, 3051	C	19173, 2008
32608, 3081	B	51927, 693	C	19581, 1400
32809, 3081	B	52165, 2768	C	19868, 3054, 3074
36157, 310	B	52480, 1073	C	19895, 1006
36605, 2650	B	52846, 1073	C	19936, 3047
38003, 307	B	52888, 2581	C	20161, 2388
38809, 660	B	53617, 699, 720	C	20497, 2408
39012, 232	B	54700, 853	C	20520, 2996
41406, 2422	B	54749, 3074	C	20522, 3074
42005, 943	B	54778, 3074	C	20633, 2996
42350, 232	B	55075, 1006	C	20719, 77, 2054
44213, 228	B	55195, 2649	C	20741, 2388
46236, 308	B	56965, 2749	C	20782, 2995
47537, 231	B	57073, 74	C	21327, 3067
47942, 2650	B	57127, 2760	C	21350, 3005
51392, 226	B	57875, 1899	C	21388, 3010, 3014
52445, 231	B	59472, 88	C	21425, 2996
54538, 2631, 2632	B	59819, 3070	C	21777, 3069
56325, 3005	B	60169, 1276	C	21811, 3069
61406, 2649	B	60863, 3074	C	21883, 1006
63365, 1006A	B	60937, 2768	C	21950, 2995
68060, 504	B	61729, 1517	C	21980, 1006B
68108, 71	B	61765, 2749	C	21994, 3008, 3010
A 711, 78	B	62932, 3064	C	22132, 3080
A 2582, 2625	B	62328, 2761	C	22133, 2995
A 6710, 2694	B	62504, 79	C	22203, 2995
A 12244, 1280	B	63482, 3050	C	22252, 1006B
A 17838, 3000	B	64397, 3046	C	22298, 2995
A 18237, 2768	B	65100, 1006	C	22496, 2995
A 18422, 231	B	65360, 3068	C	22527, 2995
A 18668, 1006A	B	65369, 904	C	22554, 1006
A 20125, 2768	B	65372, 1401	C	22781, 3008
A 20436, 1006A	B	65475, 71	C	22863, 2995
A 20548, 2768	B	65690, 904	C	22873, 3046
A 20738, 1401	B	65940, 2768	C	22876, 1006B
A 20707, 2768	B	66050, 709	C	22897, 3035
A 21107, 3007	B	66682, 2768	C	23007, 2995
A 21224, 2715	B	67265, 1006	C	23027, 1080, 1203
A 21403, 2768	B	67713, 504	C	23158, 3054, 3060
A 21455, 2768	B	68102, 1401	C	23487, 4054, 3060
A 21682, 3000	B	68108, 2629	C	23703, 3008, 3010
A 21701, 2768	B	68616, 3043	C	26778, 3049
A 22179, 852	B	68642, 1006	C	26939, 3047
A 22462, 1006A	B	68690, 3064	C	27654, 2674
A 23064, 2576, 2584	B	68700, 2584	D	11841, 1732
A 23352, 3007	B	68304, 3017	D	19353, 693
A 25211, 178	B	68990, 3068	D	21445, 3068
A 25155, 2759	B	70467, 1006	D	22139, 513
A 26008, 884	B	70709, 1401	D	22635, 1004
A 26009, 884	B	71851, 2994	D	23476, 3048

## German

D 23746, 2550	F 34066, 1400	K 43623, 2694
D 23535, 2894	F 34801, 1399	K 43811, 2768
D 23837, 3017	F 35006, 1399	K 44709, 2871
D 24553, 3056	F 35667, 1006	K 45037, 1006
D 25442, 3041	F 36020, 2996	K 45193, 2632
D 25560, 2670, 2675	F 37296, 2398	K 45381, 1074, 1090
D 27465, 3000	F 42827, 2771	K 46794, 2871
D 27648, 1402	G 31034, 2995	K 47321, 2871
D 27952, 3000	G 31206, 2995	K 47765, 2749
D 28657, 1072	G 31305, 2700	K 47775, 3008
D 29439, 3012, 3041	G 32278, 1402	K 48490, 3008, 3043
D 30733, 3047	G 32279, 1402	K 48996, 3043
D 35111, 1400	G 33385, 2995	K 60333, 3008, 3011
E 1558, 3010	G 34422, 2649	K 50334, 3011
E 14210, 3057	G 35606, 2726	K 50605, 3011
E 14310, 3006	G 35973, 1006B	K 50960, 3011
E 14630, 3057	G 36650, 2631	K 52025, 3008, 3043
E 14725, 74	G 37742, 1402	K 52056, 2632
E 14902, 74	G 38051, 1006B	K 52385, 1401
E 14993, 3006	G 39392, 2772	K 52640, 2693
E 14998, 3006	G 39779, 87	K 52789, 3008, 3043
E 15499, 2646	G 40569, 2747	K 53797, 2488
E 15581, 3006	G 49836, 1005	K 58705, 2684
E 16653, 3080	H 15323, 2251	K 65223, 2409
E 16967, 1004	H 37298, 2526, 2531	L 15737, 149, 150
E 17039, 3043	H 38309, 2526, 2531	L 3007
E 17104, 2639	H 49980, 1006A	L 27805, 3017
E 17505, 3006	H 51313, 86	L 29267, 2762
E 18037, 74, 2653	H 52909, 2620	L 29406, 2671
E 18389, 1078	H 53196, 1006A	L 30181, 2672, 3039
E 19112, 2643	H 53315, 132	L 30386, 2672, 3039
E 23046, 2771	H 53770, 2684	L 30420, 3077
F 3519, 2397	H 54205, 2681	L 30438, 3071
F 14998, 3010	H 54654, 2631	L 31671, 3064
F 20903, 3007	H 55092, 74	L 32593, 2654
F 26607, 657	H 55893, 1006A	L 32835, 3059
F 27152, 3057	H 56704, 74	L 33200, 76
F 27686, 3057	H 56968, 308	L 33278, 3078
F 28001, 87	H 57552, 1401	L 33500, 1401
F 28111, 3006, 3026, 3030	H 57917, 664	L 33557, 2762
F 28233, 3006	H 57941, 3007	L 33725, 3064
F 28869, 87	H 57945, 664	L 34366, 1401
F 29131, 125	H 59900, 1401	L 34636, 2637
F 30410, 2389	I 12904, 2964	L 34995, 310
F 31526, 1004	I 13247, 2964	L 35141, 2550
F 31530, 1006A	I 13379, 2964	L 35656, 3005
F 31742, 1006	I 14379, 3025	L 36336, 2755
F 32015, 1004	I 15442, 1401	L 36372, 1401
F 32150, 1006A	J 13577, 1006	L 39873, 3068
F 32472, 3014	J 13634, 690	L 40701, 3005
F 32823, 3010	J 14037, 2679	L 40786, 3005
F 32828, 3006	J 14089, 3064	L 45917, 2802
F 32918, 125	J 14693, 1005	M 28289, 2398, 3007, 3029
F 33072, 1088	J 15341, 3017	M 37495, 1785
F 33299, 2559	J 15342, 3017	M 37763, 1785
F 33300, 2559	J 19986, 1005	M 40840, 2559
F 33663, 1400	K 29006, 1073	M 40964, 2582
F 33960, 1006	K 36905, 3044	M 41269, 2559
	K 42929, 2683	

M 42726, 1732  
M 42944, 2597  
M 42978, 3044  
M 43170, 1072  
M 45598, 896  
M 46026, 2640  
M 47935, 73, 2655  
M 50050, 1072  
M 50150, 1857  
M 51952, 2756  
M 55925, 1072  
M 59538, 3081  
M 63043, 3014  
M 67369, 3014  
N 10069, 1081  
N 10070, 1078  
N 11703, 1400  
N 11727, 1400  
N 11853, 1006B  
N 13290, 2756  
N 13832, 2487  
N 14024, 1207  
N 14025, 1207  
N 15431, 1381  
N 16823, 2694  
O 7007, 1004  
O 7616, 1006A  
P 24172, 88  
P 24551, 2775  
P 25252, 3073  
P 25543, 88  
P 25760, 88  
P 26509, 88  
P 27088, 2775  
P 27589, 2775  
P 27980, 2775  
P 28136, 3081  
P 28735, 1006B  
P 30665, 2775  
P 30692, 1084  
P 31300, 3044  
P 31756, 2775  
P 31992, 2589  
R 26760, 72  
R 29264, 2680  
R 29585, 72  
R 31297, 2584  
R 31311, 312  
R 32345, 1400  
R 32549, 2634  
R 32601, 2582  
R 32631, 3043  
R 35500, 1005  
R 36273, 2689  
R 43062, 1203  
S 22257, 2884  
S 28642, 3081  
S 31390, 3056  
S 31578, 2638

S 32091, 2621  
S 33389, 3069  
S 33618, 1006B  
S 33764, 1006  
S 34117, 2607  
S 34159, 2881  
S 34380, 1006A  
S 34881, 1006B  
S 34983, 2650  
S 35224, 1006B  
S 35238, 1006A  
S 35402, 3072  
S 35425, 1006B  
S 35438, 1006B  
S 35801, 1006B  
S 36018, 3065  
S 36300, 1006B  
S 36321, 1006B  
S 36384, 1006B  
S 37304, 1006  
S 37390, 71  
S 37391, 71  
S 37392, 71  
S 37509, 3054  
S 37833, 1006B  
S 49017, 3049  
Sch. 36744, 313  
Sch. 37597, 1006B  
Sch. 39465, 313  
Sch. 42004, 2485  
Sch. 43938, 1270  
Sch. 44189, 1402  
St. 8230, 3073  
St. 15660, 2763  
St. 16275, 2630  
St. 16842, 2763  
St. 17549, 2635  
St. 17575, 2640  
St. 17683, 2763  
St. 18230, 3073  
St. 18576, 3073  
St. 19139, 2761  
St. 30783, 1006  
T 6524, 2762  
T 14290, 2596  
T 14390, 2679  
T 15336, 2762  
T 15850, 72  
T 16457, 1265  
T 16544, 72  
T 16876, 2777  
T 16998, 72  
T 17895, 1606  
T 17991, 1401  
T 23458, 1400  
V 4289, 88  
V 4865, 2012  
V 8284, 995  
V 8974, 3017

V 9145, 2730  
V 9306, 91  
V 9371, 2671  
V 9387, 91  
V 9388, 91  
V 9551, 2653  
V 9635, 91  
V 9653, 3017  
V 9693, 3017  
V 9896, 3082  
V 10176, 2644, 3073  
V 10382, 2644, 3073  
V 10393, 2585  
V 10703, 2007, 2625  
V 10780, 91  
V 11585, 3064  
V 12177, 3064  
V 12178, 3064  
V 12387, 3070  
W 10532, 1302  
W 10591, 1302  
W 14564, 2875, 2880  
W 30436, 3007, 3009  
W 30500, 3007, 3009  
W 30564, 2660  
W 34428, 2625  
W 36069, 3032  
W 38008, 3009  
W 38203, 2597  
W 42345, 93, 1909  
Z 5379, 1072  
Z 7052, 2583  
Z 7426, 1456  
Z 8310, 1308  
Z 8844, 2679

Patents

Oct. 16, 1877, 1071  
Dec. 24, 1880, 459  
Jan. 25, 1881, 459  
Jan. 29, 1884, 2910  
May 24, 1898, 2626  
July 7, 1898, 2659  
Apr. 6, 1899, 2877  
Apr. 27, 1907, 89  
July 26, 1913, 701  
22, 2380, 2600  
229, 1014, 1020, 1031  
362, 705  
489, 2380  
528, 457  
690, 1624, 1785, 2380,  
2923, 2945, 2963  
851, 2380, 2617  
890, 2380  
933, 293  
970, 2380, 2600  
1005, 1366  
1017, 2380

**German**

1078, 271	6512, 2380, 2739	12266, 1211, 2380, 2842,
1195, 2380	6556, 2380	2845, 2869
1349, 2380	6828, 2380, 2658, 2676	12295, 1130
1351, 1060	6895, 1029	12416, 2380, 2838, 2843,
1384, 2907	6902, 2039, 2380	2921
1443, 2380	6902, 2664	12769, 2380, 2580
1694, 2380, 2604	6927, 2380, 2738, 2739	12778, 2380, 2578
1764, 1030	6969, 453	13088, 2532
1853, 1624, 1806, 1878,	6972, 1383	13279, 457
2380	7104, 2380, 2664	13417, 2909
1906, 1071	7162, 2668	13678, 453
2010, 2600	7174, 1086	13726, 2380, 2838, 2843,
2012, 2380	7380, 2380, 2738	2921
2430, 2380	7494, 1071	13913, 682, 705
2636, 2380	7518, 460	13944, 2380, 2413
2660, 1626, 2380, 2780,	7784, 1887, 2380	14425, 1086
2803, 2924	7859, 2380, 2578	14619, 1631
2680, 457	7860, 2668	14625, 2380, 2574
2693, 2380	8008, 2380, 2739	14717, 77
2832, 2380	8273, 2668, 2675	14830, 2974
3008, 2380, 2718	8273, 2380, 2658, 2671	14836, 2974
3067, 1803	8350, 1313	14884, 2380
3101, 2380	8528, 2380, 2739	14892, 2678, 2685, 2745
3110, 1101, 1131	8574, 271	14928, 1086
3181, 338	8727, 1590, 2574	15073, 1631, 2971
3392, 534, 2039, 2380,	8730, 1017	15252, 1212
2664	8829, 2380	15428, 457
3854, 391	9009, 2380, 2632	15531, 391
3867, 240, 1625, 2380,	9140, 2380	15546, 1086
2923, 2975	9267, 1071	15639, 1130, 1363, 1391
3912, 287	9634, 1072	15741, 450
4007, 2380, 2738	9857, 2380	15757, 1339
4178, 277, 287, 311	9890, 1693, 2380, 2575,	15916, 2380, 2512
4179, 277, 287, 311	2740, 2807, 2887	16254, 2960
4262, 450	9969, 1086	16373, 391, 457
4410, 151, 240, 568,	10033, 460	16413, 2380, 2719
624, 2031, 2380	10145, 1369	16430, 391
4472, 682	10149, 1392	16860, 1086
4506, 1101, 1113	10210, 1626, 2380, 2577,	17026, 1780, 2380
4610, 1020, 1029, 2380,	2658, 2661	17154, 1232
2780	10232, 1629, 1819, 1867,	17272, 2380, 2743
4702, 428	2380, 2955, 2968	17371, 1086
4771, 2380	10242, 457	17397, 1086
4829, 2380, 2924, 2949	10386, 1273	17470, 457
2959	10450, 2601	17677, 2380, 2601
4976, 2380, 2600	10497, 457	17722, 2380, 2601
5144, 1625	10579, 450	17815, 456
5427, 302	10710, 1086	18226, 2453
5458, 2039	10816, 1625	18413, 105, 2380
5528, 2380, 2510, 2512	10834, 1366	18438, 2380
5891, 290	10836, 460	18486, 705
5977, 2708	10864, 2380	18662, 2604
5988, 2887	10899, 457	18712, 452
6064, 1625, 1803, 2380	11030, 1616, 2965	18794, 2859
6091, 1101, 1131	11404, 457	18950, 1632, 2251, 2380,
6384, 1086	11717, 2380, 2739	2924, 2944
6389, 1088	11836, 202, 2380	19426, 1241
6450, 2380	12115, 1629, 1804, 1872,	19570, 705
6472, 2380		

- 19635, 2380  
19754, 457  
20139, 302  
20344, 457  
20462, 2380  
20483, 2380, 2601  
20722, 705  
20733, 2380, 2838, 2844  
20948, 1030  
21032, 1077  
21160, 1632, 2380  
21358, 457  
21398, 302  
21786, 457  
21833, 2380  
21889, 457  
21957, 2380, 2690  
22118, 1101, 1162  
22177, 203  
22236, 2380  
22332, 454  
22365, 1060, 1092  
22370, 234, 568  
22418, 2164, 2380, 2971  
22622, 457  
22716, 391, 457  
22758, 1071  
22835, 2688  
22850, 1086  
23080, 1078  
23142, 1030  
23153, 2380, 2453, 2475  
23159, 1365  
23355, 453  
23492, 2380, 2601  
23586, 1087  
23590, 453  
23718, 284  
23760, 2380  
23787, 2591  
23808, 1633, 2166, 2251,  
2380, 2384, 2501,  
2923, 2943  
23822, 2380, 2743  
24041, 477  
24155, 1078  
24173, 59, 112  
24177, 2380, 2601  
24277, 2380  
24312, 457  
24317, 2874  
24402, 1311  
24502, 457  
24629, 457  
24674, 2166  
24748, 960, 1313  
24772, 2380, 2828, 2832  
24795, 2380, 2623  
24903, 1633  
24924, 268  
24942, 391  
25139, 2380, 2601  
25171, 2380, 2920  
25485, 281, 292  
25535, 2380, 2719  
25590, 2380  
25740, 450  
25755, 457  
25771, 1020, 1030  
25886, 2380, 2672  
26014, 1633, 2164, 2166,  
2251, 2380, 2501,  
2923, 2943  
26072, 2380, 2906  
26115, 457  
26144, 2739  
26181, 1059  
26202, 457  
26331, 276, 292, 312  
26521, 391, 455  
26959, 1103, 1131  
27031, 2380, 2578, 2580  
27033, 2380  
27077, 2380  
27503, 2380, 2601  
27581, 1059  
27658, 2380, 2720  
27726, 1100  
27918, 2380, 2719  
27969, 1634, 1855, 2380,  
2385, 2923  
28064, 2380, 2997  
28066, 2380  
28067, 1059  
28219, 269  
28277, 457  
28296, 1633, 2380  
28356, 457  
28401, 457  
28768, 1350  
28887, 2380, 2601  
28971, 53, 2154  
28972, 2380, 2615  
28984, 2380, 2601  
29025, 457  
29425, 2863  
29504, 233  
29600, 453, 463  
29664, 1415, 1456, 2380  
29669, 2380, 3001  
29848, 1030  
29985, 454  
29975, 430  
30066, 2562, 2676  
30188, 1230  
30211, 1217  
30242, 2164  
30256, 463  
30291, 2380, 2623, 2646  
30306, 2380  
30419, 2768  
30470, 2380, 2721  
30676, 1634, 2380  
30746, 1020, 1029  
30749, 1265  
30803, 1101  
30830, 162  
30843, 2380, 2413, 2475  
30844, 1060, 1069  
30902, 2380, 2475  
30966, 225, 233  
31277, 1360  
31548, 269  
31620, 1360  
31717, 292  
31786, 2380, 2923, 2946,  
2948, 2972  
31945, 2380, 2721  
32083, 2380  
32252, 2154  
32256, 391  
32293, 2380, 2760  
32329, 290  
32388, 480  
32696, 291, 309  
32704, 162  
32874, 2380, 2588  
32891, 2380, 2969  
33100, 1020, 1086  
33172, 1383  
33189, 428  
33235, 292  
33255, 1030  
33612, 2380  
33625, 457  
33677, 452  
33867, 2166  
34020, 2575  
34023, 682  
34031, 391, 454  
34117, 2380, 2477  
34420, 283, 287, 311  
311  
34825, 1030  
34947, 1308  
34950, 453  
35122, 1030  
35232, 1030  
35260, 452  
35347, 1366  
35482, 451  
35510, 2380, 2413, 2475  
35620, 1133  
35668, 1019  
35693, 457  
36061, 1875, 2380, 2947  
38250, 455

## German

36372, 1308	42458, 2512	51189, 2380, 2949
36514, 2380, 2385 *	42519, 409	51471, 1952, 2380, 2924,
36569, 457	42558, 2380	2950, 2959
36573, 2380, 2724	42743, 2380, 2958	51554, 2385
36609, 1078	42893, 2380, 2958, 2909	51755, 1637, 1820, 2380,
36705, 2380, 2955	43002, 2380, 2682	2923
36718, 1635, 2380, 2948	43453, 1101	52000, 1101, 1131
36721, 291, 1059	43457, 2593	52025, 1092
36850, 391	43521, 2918	52491, 311
36872, 2380, 2950	43550, 452	52578, 391, 454
37231, 455	43695, 2380, 2475	52775, 2380, 2723
37236, 477, 479	43900, 1308	52781, 457
37353, 1360	43943, 391	52868, 2380, 2747, 2909
37355, 2380, 2475	44041, 2380, 2964, 2965	52977, 2380, 2623, 2626,
37658, 225, 233	44129, 2380, 2744, 2745	2636
37713, 1383	45024, 1782, 2380, 2754	53043, 292
37824, 2380	45080, 391, 454	53078, 2380, 2496
37842, 1078	45131, 2380, 2744, 2746	53294, 2380, 2949
37882, 283, 310	45284, 457	53296, 1900, 2380, 2924,
37903, 2380, 2719	45624, 2380, 2744	2943, 2954, 2958
37923, 420, 470	45712, 2380, 2949, 2959	53420, 2380
38014, 1019, 1027	45723, 1313	53585, 2595
38015, 1300	45725, 1020, 1033	53672, 2280
38018, 1360	45857, 1856, 2380, 2385, c	53936, 2380, 2568
38041, 1027	2924	54077, 1970, 2028, 2380
38325, 2380	45884, 682	54206, 287, 311
38363, 1800, 1860, 2380,	45951, 290, 316	54214, 2380, 2898
2924, 2946	46006, 722, 984, 985	54435, 2624, 2963
38368, 2380, 2622, 2641	46101, 743	54528, 2380, 2965
38397, 391	46125, 1899, 2380, 2622	54434, 1820, 2380
38428, 2380, 2510	46135, 1018	54730, 1360
38734, 2380	46205, 2380	54818, 1638, 2924, 2944
39043, 391	46265, 2380	54819, 2380, 2683
39144, 458	46724, 722, 985	55292, 2380
39146, 2475	47572, 478	55293, 2380, 2623, 2645,
39388, 2923	47599, 2441	2710
39511, 1871	48100, 857	55650, 1900, 2380, 2924,
39573, 477, 479	48252, 1058	2943, 2954, 2958
39650, 722, 985	48265, 1637, 1804, 1826,	55652, 1099
39667, 1030	2923	55678, 1090
39772, 2874	48269, 305	55949, 2380, 2622, 2626,
39785, 2380, 2475	48285, 1063, 1091	2632
40273, 2380, 2744, 2746	48343, 2476	56330, 2154, 2380
40308, 290, 307	48755, 2380, 2457	56331, 2380, 2622
40373, 2380, 2624	48933, 1637, 1783, 2380,	56516, 2380, 2611
4500, 226	2501, 2923, 2964	56558, 457
4693, 292	49154, 1636, 2164, 2251,	56655, 985, 1422, 1441,
4696, 1130	2380, 2943	2380, 2622
4844, 2154	49162, 2601	56785, 2380, 2924, 2950
4922, 455	49194, 1088	56786, 1851, 1877, 2380,
1207, 2477	49261, 2380	2923
1507, 2380	49356, 2380, 2700	56946, 2380, 2974
41508, 2537	49628, 1012	57049, 391
41678, 2380, 2475	49704, 2672	57118, 1132
41703, 292	50008, 2380, 2723	57399, 2924
41718, 1031	50442, 391	57342, 461
42215, 1100	50621, 2008, 2130, 2380	57393, 2380, 2480
42452, 1636, 2380, 2924,	50930, 77	57399, 2246, 2380, 2503
2949, 2956	51022, 2380, 2385	57427, 2380, 2924, 2952

57534, 2380, 2680	66813, 924	74775, 985
57618, 2380	66866, 2452	74359, 450
57630, 2380, 2457	67085, 1280	74487, 812
57642, 1030	67142, 1956, 1973	74525, 1029
57711, 1825, 1826, 2380	67255, 2522, 2532	74736, 1973, 2031
57732, 2380	67697, 3047	74855, 1785, 2684
57846, 45, 214	67863, 1370	75349, 2699
58133, 1891, 2380	67880, 279, 282	75351, 284, 288, 312
58379, 2673	67912, 2683, 2720, 2721	76407, 1369
58381, 1975, 2015, 2380	68074, 391, 454	76691, 1391
58500, 2380, 2683, 2714	68225, 2647	76775, 1078
58508, 2380, 2622, 2632	68361, 2686, 2689	77069, 1099
58511, 1367	68620, 391	77097, 2624
58569, 292	68752, 2678	77162, 2856
59099, 722, 985	69059, 814, 985	77299, 2441
59267, 2380, 2403	69216, 1383	77331, 1369
59629, 2036, 2380	69231, 2891	77335, 1013, 1027, 1086
60233, 275, 278, 1638, 2380	69356, 2585	77544, 2480
60550, 2380	69501, 1222	77826, 170
60595, 570, 2036, 2380	69736, 3047	78306, 274, 305
61043, 1071, 1078	69807, 251, 275, 1638	78573, 945, 985
61044, 2681, 2688, 2745	69808, 454	78601, 230
61321, 1390	69874, 307	78910, 2774
61331, 1354	69892, 310	79245, 445
61659, 454	70012, 426	79493, 1011
61752, 1361, 1369	70067, 171, 241, 2957	79645, 722, 846, 985,
62159, 1851, 1877, 2923	70248, 391	993
62216, 1076	70275, 426	79999, 811
62362, 2441	70396, 1074, 1086	79706, 1013
62674, 2712	70505, 391	79763, 420
62714, 985, 989, 993, 998	70881, 1402	79961, 455
63036, 698	70999, 518, 3062, 3070, 3073	80158, 2441
63042, 313	71204, 2658, 2720	80390, 1099
63189, 791, 1018	71279, 705, 710	80623, 1011
63207, 722, 818, 826, 985	71580, 1381	80776, 2545, 2551
63591, 1367	71586, 1370	80922, 453
63714, 722	71837, 2924	81207, 204
63799, 722	71908, 1212, 1242	81338, 291, 310, 1087
63822, 2723	71917, 1303	81381, 2863
63839, 2722	71942, 274, 290, 305, 306	81599, 2622
64031, 43, 55, 563, 1636, 1755, 2022, 2622	72104, 212, 287, 311	81643, 290, 306
64180, 2510, 2518	72223, 2697	81664, 1858
64447, 1956	72362, 287, 311	81805, 2958
64572, 1367	72572, 97, 2626, 2650	82081, 1015
64717, 2680	72969, 1689, 1890	82111, 2699, 3081
64878, 27, 320, 568, 2026	72998, 2441	82112, 2699, 3076, 3081
65399, 1951, 2032	73222, 1013, 1024	82498, 287, 311
65540, 1956, 1973	73421, 722, 843, 985	82555, 2622, 2626, 2632
66055, 2752	73665, 2723	82573, 722, 985, 998
66096, 1310	73689, 1359	82578, 989
66199, 2593	73718, 281, 308	82691, 2999
66730, 2864	73924, 290	82760, 2853, 2855
66806, 924	74030, 287	82833, 2683
	74031, 311	82857, 97, 2626
	74070, 2011, 2032, 2252, 2924	83095, 2924, 2945, 2971
	74274, 945, 985	83097, 722, 985
		83314, 233
		83438, 291, 310, 1087



## • German

83526, 1011	80843, 2616	97824, 2595
83540, 1380	89872, 2685	97935, 279, 307
84014, 284	89959, 1015	98182, 225
84065, 2060	89977, 233	98201, 2637
84146, 2388, 2591	90144, 1011	98274, 2699
84230, 255	90291, 2441	98602, 2624
84336, 2441	90654, 812	98642, 71, 75, 92
84450, 2585	90798, 292, 306, 312	98968, 225
84588, 420	91260, 1011, 1210	99256, 2441
84685, 2745	91503, 2774	99337, 225
84904, 2609	91718, 2514	99378, 421
85040, 722	91810, 2591	99531, 722
85042, 985, 994	91815, 1011	99577, 1791
85103, 895, 943	91819, 2388	99610, 2772
85121, 2852	92079, 198, 205	99616, 2595
85235, 2673, 2697	92086, 2660	99682, 280
85240, 985	92259, 421, 2770	99761, 2595
85242, 722	92585, 2616	99768, 1011, 1359
85329, 3006	92590, 3063	99875, 2924, 2962
85359, 2855	92810, 944	100701, 225
85564, 228	92813, 1640	100708, 1011, 1070
85565, 228	92992, 2510, 2512	100796, 225, 226
85889, 459	93009, 2388, 2576, 2625	100890, 2892
86368, 3006	93106, 2616	101040, 2713
86419, 3005	93228, 2544, 2924, 2962	101132, 2882
86447, 2441	93351, 2253, 2924	101190, 65
86542, 313	93592, 705	101323, 2473
86623, 2699	93797, 1779	101376, 1011
86631, 2089	93944, 284, 287, 311	101813, 226
86651, 284, 287, 311	93945, 284, 311	101844, 2635
86740, 2612	94019, 2441	101868, 2680
86938, 97, 99	94230, 2616	101915, 233
86977, 1348	94282, 421	102017, 226
87130, 2441	94292, 2974	102103, 225
87344, 2746, 2748	94467, 273	102244, 1100, 1103, 1105, 1161
87472, 2908	94627, 2414	102540, 2848, 2859, 2862
87614, 2510, 2512	94628, 421	102548, 227
87673, 2660	94737, 2859, 2862	102573, 2635
87678, 292	95083, 1011, 1212, 1243	102672, 225
87684, 2556	95390, 2253, 2924	102743, 1825
87982, 722, 985	95482, 225	102962, 2541
88082, 2774	95532, 900, 945	102963, 2612
88114, 2776	95722, 1011	103041, 230
88205, 2924	95811, 2747	103042, 2691
88299, 277	95904, 225	103064, 1099
88301, 2980	96109, 567, 1640, 2031, 2063, 2111	103328, 226
88320, 696	96157, 1094	103506, 2617
88321, 722, 818, 985	96208, 2635	103518, 2905
88368, 1011, 1210	96316, 290	103592, 477
88442, 2588, 2720	96365, 2606	103719, 2476
88447, 426	96434, 292	103720, 2476
88556, 1900, 2595	96467, 286, 311	103726, 2606
88648, 431	96800, 2688, 2689	103771, 1011
88681, 1891	97208, 1011, 1271	103990, 2637
88784, 1011, 1222	97289, 1856	104164, 2540
88999, 924, 944	97565, 426	104188, 1013, 1302
89025, 1271	97664, 228, 230	104357, 722, 840, 985
89291, 2441	97690, 2112, 2924, 2959	104359, 311
89515, 2699		

104672, 1011	2754	114401, 305
104753, 1011	110029, 232	114415, 2018, 2028
105347, 3019	110089, 2856	114499, 1811, 2945, 2946
105626, 2476	110154, 2768	114500, 1811, 2925, 2944,
105669, 316	110184, 231	2946
105704, 722, 840	110254, 722, 817, 985	114868, 2852
*105876, 1100, 1103, 1157	110289, 2093, 2111, 2555,	114973, 129
105877, 1879	2924	115068, 78
106021, 290	110388, 1086	115256, 292
106022, 1011	110508, 226, 231	115333, 1100, 1103, 1161
106043, 77	110633, 226	115334, 2388, 2497
106057, 2924, 2979	110716, 2848, 2860	115466, 2736
106118, 1011	110972, 287	115607, 315
106334, 2919	111019, 1190, 1241	115681, 2763
106446, 2659, 2761	111195, 2682	115728, 2684
106576, 2750, 2912	111248, 92	115856, 3067, 3071
106593, 226	111289, 2031	115989, 92
106596, 226	111291, 2660	116029, 226
106708, 65	111313, 75, 85, 91	116252, 2715, 2717
106715, 1116	111333, 92, 2631	116412, 2699
106864, 2689, 2693	111370, 226	117051, 2961
106962, 722, 815, 985,	111387, 2595	117129, 1057, 1303
993	111409, 85	117171, 2463
107050, 1891	111480, 2594	117219, 226
107378, 226	111790, 85	117255, 227
107379, 226	111868, 203	117310, 2891
107637, 2760, 2762	112076, 228	117319, 1640, 2026, 2094,
107916, 230	112097, 2616	2251, 2924
107923, 2060, 2065	112449, 287	117380, 304
107995, 1101, 1102, 1117	112517, 2735	117461, 3070, 3071, 3082
108107, 226	112615, 2748, 2909	117542, 2589
108402, 1784	112683, 2461	117623, 924
108445, 1117	112741, 227	117733, 231
108446, 1101, 1102, 1117	112770, 2679	117755, 78
108506, 2594	112775, 225	117878, 2767
108511, 2594, 3063, 3068,	112817, 3006, 3018, 3019	117924, 2772
3076	112835, 1190	118052, 2538, 2542
108532, 1011	112865, 2777	118061, 226
108653, 226	112916, 226	118270, 226
108708, 2981	113114, 2590	118271, 226
108766, 226	113165, 2497	118359, 227
108881, 226	113208, 74	118429, 225
108971, 925	113343, 228	118538, 132, 149
109247, 1369	113374, 226	118540, 137, 203
109285, 226	113435, 200, 306	118542, 203
109431, 226	113457, 226	118543, 203
109483, 1103, 1157	113458, 225	118544, 203
109484, 1302	113566, 2606	118554, 3082
109580, 1011	113704, 226	118836, 91, 103
109607, 225	113719, 2434	118837, 91
109682, 2647	113786, 102, 2646	118880, 1011, 1380
109737, 2778	113932, 1100, 1451, 1157,	119059, 1151
109738, 2676, 2722	113928, 231	119098, 92
109756, 226	113929, 231	119099, 92
109839, 2854, 2919	113933, 1151	119118, 2588
109837, 225	114029, 2766	149127, 2080
109951, 306	114192, 226	119137, 227
109966, 91, 138	114278, 2755	119149, 226
110012, 1781, 2624, 2746,	114400, 2593	119230, 69, 92

## German

119265, 429	124900, 1086	129426, 3071
119331, 226	125078, 2154	129436, 3077
119333, 227	125098, 2960, 2984	129484, 2891
119363, 2680	125100, 2253, 2924, 2944	129843, 230
119427, 227	125101, 2167	129882, 2564
119505, 1157	125206, 732	129883, 228, 3076
119636, 2538	125309, 2622, 2644, 3067,	129966, 2612
119736, 227	3071, 3077	129974, 227
119737, 227	125310, 92	130033, 2735
119880, 2400	125311, 2765	130151, 1011
120201, 2024, 2052, 2985	125315, 2543	130277, 107
120240, 2691	125392, 1899	130439, 803
120302, 227	125416, 3076, 3082	130523, 1829, 2923
120344, 225	125469, 2737	130665, 314
120562, 1152	125620, 2679	130938, 2692
120576, 225	125665, 1011	131108, 292
120597, 1975	125647, 2636, 3074	131134, 227
120602, 226	126196, 2527	131228, 227
120713, 149	126203, 455	131704, 227
120870, 2876	126601, 808	132224, 291, 308
121339, 1356	126734, 2081	132371, 2545, 3040
121429, 85	126829, 2154	132421, 2921
121430, 85	126836, 2745, 2747, 2909	132577, 1011
121809, 203	126974, 2167	132605, 3000, 3001
121901, 2775	127002, 227	132693, 2892
121906, 1119	127046, 2636, 3074	132696, 2748, 2750, 2909
122068, 2765	127119, 2736	132732, 2767
122166, 2542	127143, 2253, 2924, 2944	132894, 2745
122171, 292	127161, 226	133063, 2892
122190, 2795	127350, 3000, 3001	133144, 3068, 3070, 3071
122207, 1011	127422, 3078	133247, 1151, 1350
122272, 2538, 2547	127565, 1019	133250, 2893
122351, 232	127647, 722, 815, 985	133312, 292, 315
122397, 2747	127771, 2869	133427, 217, 2636
122488, 227	127816, 2538	133456, 225
122489, 284, 290, 306	127846, 1114	133542, 37
122566, 1011	127899, 2863	133713, 1100, 1103, 1151
122608, 2031	127968, 2924	133933, 1151
122750, 227	127985, 1303	134289, 925
122863, 227	128119, 2540	134301, 430
122920, 1011	128120, 2540	134303, 2556
123121, 132, 140, 150,	128213, 291, 304	134312, 217, 2642
504, 660, 3000,	128284, 1896, 235	134314, 2763
3025	128475, 231	134449, 225
123171, 1011	128554, 1161	134553, 2532, 2533
123445, 227	128616, 1100, 1103	134661, 1011
123609, 1011	128647, 227	134721, 2598
123822, 227	128651, 1011	134734, 1019, 1025
123911, 904	128661, 310	134738, 1114
124133, 230	128903, 292	134773, 1011, 1281
124236, 2167	128950, 2736	134928, 1114
124408, 3034	128956, 2540	134932, 891
124552, 2748, 2911	129013, 2595	134963, 2887
124624, 2875	129167, 2775	134968, 227
124752, 2736	129227, 290	135102, 2924
124849, 2893	129247, 1011	135310, 2509
124856, 230	129326, 304	135312, 455
124863, 2692	129329, 2167	135316, 2624, 2744
124864, 2685	129420, 2622, 2644	135318, 2921

- 135534, 2595<sup>4</sup>
- 135695, 227
- 135723, 162
- 135886, 1011, 1369
- 135887, 1100, 1103, 1157
- 136015, 174
- 136134, 1100, 1103, 1117
- 136153, 2716
- 136322, 202, 315
- 136447, 2736
- 136547, 1034
- 136678, 1464
- 136679, 722
- 136789, 722
- 136864, 2979
- 137206, 132
- 137255, 2642, 2646
- 137267, 2864
- 137330, 415, 428
- 137469, 79, 87
- 137962, 2892
- 138006, 2680, 2704
- 138028, 1099
- 138119, 174
- 138222, 231
- 138507, 2636
- 138511, 3062, 3081
- 138572, 2704
- 138695, 1100, 1103, 1161
- 138783, 2754
- 138893, 230
- 139234, 1011
- 139387, 2416
- 139442, 1899
- 139447, 2681, 2690
- 139554, 1157, 1160
- 139580, 2540
- 139633, 174
- 139669, 3009, 3021, 3040
- 139715, 1018, 1020
- 139738, 2536, 2543
- 139835, 174
- 139899, 1899
- 139905, 2542, 2754
- 140145, 2742
- 140263, 2549
- 140319, 2460
- 140347, 78
- 140353, 1100, 1103, 1115, 1150
- 140480, 2549
- 140529, 2907, 2920
- 140542, 292
- 140521, 2590
- 140552, 2671, 2774, 2777
- 140573, 174
- 140712, 2747
- 140784, 1787
- 140825, 1011, 1239, 1282
- 140855, 2549
- 140862, 292
- 140908, 2848, 2855, 2859, 2863
- 140976, 2745
- 140998, 1011
- 141132, 227
- 141268, 2736
- 141309, 2763
- 141310, 2493, 2542, 2765
- 141314, 1868, 2924
- 141355, 174
- 141452, 1061
- 141453, 1011, 1235
- 141623, 226, 230
- 142144, 1100, 1103, 1108, 1122
- 142410, 1027, 1101, 1103, 1117
- 142454, 2693
- 142514, 2400
- 142832, 2540
- 142855, 1108, 1117
- 142865, 1100, 1103
- 142923, 2716
- 142926, 2874
- 142963, 174
- 142971, 2540
- 143593, 1190
- 143612, 227
- 143740, 1073, 1079
- 143763, 2635
- 144084, 1011, 1246
- 144150, 255
- 144217, 934, 2550
- 144428, 227
- 144633, 983, 985
- 144638, 722, 818
- 144648, 2540
- 144661, 2875, 2876
- 144695, 230, 232
- 144819, 292
- 144846, 2252, 2389, 2924
- 145106, 3027, 3028, 3031, 3037, 3038, 3042
- 145282, 2863
- 145582, 230
- 145599, 1275
- 145600, 1275
- 145743, 1448
- 146276, 2863
- 146432, 2676
- 146499, 2481
- 146538, 2981
- 146712, 684, 945, 946
- 146904, 2750, 2863
- 147761, 2596
- 147844, 137, 200, 213, 278
- 147806, 431
- 147948, 2892
- 147964, 2763
- 148038, 2635
- 148101, 2710
- 148124, 1031
- 148196, 1100, 1103, 1116, 1151
- 148205, 1280
- 148275, 311
- 148331, 292
- 148587, 2642, 2647
- 148664, 2863
- 148682, 2737
- 148889, 2636, 2654
- 149057, 2596
- 149140, 227
- 149211, 2855
- 149297, 2736
- 149461, 291, 308
- 149588, 425, 429
- 149677, 227, 1100, 1103
- 149764, 1787
- 149791, 2525
- 149799, 2863
- 149828, 2890
- 150319, 2079
- 150353, 1151
- 150825, 2584, 3053
- 150881, 2566
- 151545, 2435, 2483
- 151723, 1212
- 151867, 2909
- 151918, 3017, 3027, 3031, 3037, 3038, 3042
- 151973, 2750, 2803
- 152111, 3027, 3029, 3031, 3037, 3038, 3041, 3042
- 152131, 3039
- 152217, 3056
- 152236, 291, 308
- 152337, 227
- 152340, 2685
- 152432, 2642, 3056
- 152630, 2701, 3006, 3011
- 152743, 3070, 3072, 3077
- 152797, 2804
- 152805, 883
- 152822, 2736
- 152228, 2761
- 153346, 2594
- 153350, 149, 2399, 2494
- 3024, 3025, 3028
- 3029, 3040, 3058
- 153641, 1090
- 153671, 1900
- 153758, 2596
- 153817, 3073

German			
153924, 2525, 2529		3006, 3024, 3025,	164382, 682
154084, 1101, 1102, 1117		3028, 3029, 3053,	164507, 2512
154101, 2848, 2859, 2863		3058	164638, 1976
154107, 2524	159976, 1091		164661, 3068
154124, 2558	160151, 305		164664, 1013
154448, 2874	160244, 2635, 3068, 3078		164722, 1348
154475, 2872	160378, 2681		165141, 2591
154507, 89, 217, 2636	160396, 2624		165148, 2483
154539, 2748, 2863	160651, 269, 294		165218, 2640
154575, 2461	160665, 2749, 2863		165225, 1975
154657, 3060	160666, 2870, 2872		165270, 1072
154992, 2705	160671, 812		165310, 732
155006, 722, 985, 995	160694, 1081		165331, 2554, 2623, 2630
155005, 703, 723, 985	160709, 703, 843		165557, 2614, 2630, 2654
155117, 2691	160722, 2840		165897, 2389
155179, 2893	160940, 1089, 1092		165988, 2716
155541, 2874	161017, 1092		166259, 431
155562, 456	161154, 1081		166325, 2692
155630, 2773	161213, 2576, 2578, 2892		166420, 2168, 2924
155744, 217	161262, 2625		166557, 1355, 1380
155745, 3067, 3071, 3073,	161306, 2528, 2532		166569, 1072
3077	161362, 2596		166599, 1124
155749, 2790	161523, 2525, 2527, 2528,		166722, 2525, 2526
155778, 2893	2530, 2532		166745, 1211, 1218, 1291
156063, 2594, 2652	161624, 1072		166804, 1858
156148, 425	161644, 204, 305		166807, 227
156239, 2899	161675, 292		166947, 290, 306
156402, 226, 227	161712, 2893		167232, 2878, 2921
156413, 2735	161780, 2594		167304, 3001
156434, 227	161882, 3000		167457, 1337
156441, 2978	161933, 1977		167633, 2878, 2895, 2921
157043, 1302	162044, 2899		167664, 1036
157157, 89, 217, 2636	162218, 1210		167930, 230
157323, 227	162239, 2541, 2753, 3020		167931, 682
157383, 2686	162323, 682, 3036, 3041,		168124, 2882
157553, 2772, 2777	3051		168171, 2635
157554, 2772	162444, 2693		168173, 2624
157589, 1204	162856, 2730		168272, 896, 911, 917,
157590, 2532	162863, 2539		943
157763, 295	162866, 90		168359, 2606
157767, 1303	162913, 1025, 1030		168397, 2895
158078, 2874	163070, 294		168490, 1858
158080, 2874	163103, 3000		168497, 2549
158272, 227	163233, 92, 2634		168601, 853
158310, 2568	163293, 2629		168830, 83
158497, 313	163316, 3014, 3033		168852, 1956, 1962
158612, 2686	163320, 932		168870, 1033
158613, 2686	163467, 2635, 3072		168980, 429
158715, 1279, 1280	163473, 1025		169364, 3057, 3058
158717, 2525, 2527, 2530	163661, 3067		169408, 287, 314
158838, 682	163668, 2018, 2037, 2549,		169409, 287, 311
158861, 431	2552, 2753		169448, 114
158928, 2692	163818, 2763		169567, 90
159079, 1276	163835, 1119		169679, 2766
159088, 455	163912, 2680		169728, 1157
159227, 1978	163914, 1072		169792, 1222, 1240, 1260
159351, 456	164294, 2462		169730, 3003
159377, 314	164297, 2418		169746, 2463
159524, 149, 2399, 2494,	164321, 2935, 3072		169782, 232, 2493, 3035,

169818, 1090	3054	174068, 3024	173762, 1152
169880, 310		174259, 2389, 2539	178827, 2760
169906, 82		174347, 2172, 2924	178832, 2645
169931, 2625		174508, 90	178934, 2532, 2533
170048, 2874		174564, 705	178942, 2636
170049, 2874		174576, 1962	178944, 2676
170051, 2644, 2648		174624, 456	178985, 2611, 2618
170059, 2576		174736, 916, 985, 991,	179288, 693, 698, 705
170167, 2482		1392	179305, 847
170196, 2673, 2678		174877, 3082	179513, 1342, 1350
170332, 723		174914, 2547, 3028	179515, 3004
170532, 834, 985, 998		174930, 2047, 2923	179588, 1119
170533, 2396		175034, 2874	179590, 235, 421
170585, 869, 990		175097, 2532, 2533	179634, 2111, 2253, 2924
170602, 1070		175206, 83	179738, 2527, 2531
171088, 1229		175352, 2776	179772, 89
171146, 3000		175379, 3017, 3022, 3040	179782, 682, 689
171428, 1784, 1786, 2754		175383, 3062	179825, 869, 990
171623, 693		175399, 1784, 2924, 2984	179833, 2648, 2765
171639, 2625		175401, 684	179882, 869
171657, 2698		175436, 1080	179917, 2541, 2753, 3020
171694, 1779, 1786		175636, 3071	179950, 683
171704, 2688		175662, 2518	180014, 683
171752, 2624		175664, 232, 2493, 2613,	180017, 2595
171787, 3001		3035, 3054	180052, 723, 882, 890,
172118, 2874		175789, 2420	982, 985, 993,
172261, 72		176121, 2586	1420
172265, 72		176159, 2874	180070, 1090
172285, 2693		176296, 83	180071, 1090, 1091
172371, 1967		176369, 1356, 1390, 1448	180126, 2514, 2660
172499, 1978		176370, 1359, 1387	180141, 684
172549, 1832		176474, 2544, 2545, 2660	180168, 311
172622, 2678, 2680, 2694		176578, 2716	180208, 2545
172651, 2693		176616, 684	180263, 1079
172678, 1280		176690, 2650	180189, 2578
172851, 2879		176722, 291, 310	180587, 982, 1420
172877, 2769		176944, 1355	180666, 325, 2650, 3009,
172941, 2552		176994, 1380	3053
172966, 2389, 2539, 2552		177032, 2172, 2924	180667, 2650, 3009, 3053
172967, 2539, 2552		177166, 230	180685, 2955
173012, 2635		177174, 2478	180691, 883
173014, 2540		177241, 226	180724, 2924, 2967
173020, 2539		177287, 1020, 1033	180768, 311
173239, 1030		177290, 2527, 2531, 2532	180830, 421
173259, 2712		177291, 2527, 2531, 2532	180847, 300
173592, 2754		177304, 1356	181063, 1050
173610, 2483		177519, 682	181126, 292, 315
173612, 1280		177667, 3062	181466, 231
173620, 682		177778, 2541	181516, 1074
173628, 89		177957, 2624	181667, 703
173631, 2483		177963, 1072	181784, 2644, 3054
173633, 2775		178020, 4031, 1032	181927, 230
173678, 2650		178133, 2552, 2672	181991, 689, 919, 920
173686, 290, 306		178308, 2659	181992, 919
173796, 2540		178380, 2634	182030, 2959
173976, 1099		178416, 72, 2631	182044, 2518
173990, 2777		178438, 2709	182216, 1448
174001, 3060		178644, 3080	182297, 693, 705
		178688, 2874	182300, 2527, 2531, 2532

## German

- 2533  
 182409, 1072  
 182558, 415  
 182574, 2648  
 182691, 3003  
 182773, 232, 2493, 2680,  
 3036, 3054, 3077  
 182820, 1032  
 182849, 690, 883  
 182937, 232  
 182943, 2518\*  
 183001, 2643  
 183097, 1211, 1218, 1291  
 183153, 82  
 183163, 2717  
 183190, 2516  
 183317, 2648  
 183410, 683  
 183415, 291, 309  
 183557, 83  
 183623, 3007, 3070, 3071,  
 3073  
 183702, 689  
 183703, 1063  
 183748, 1280  
 184038, 1090  
 184145, 3006, 3028  
 184150, 83  
 184201, 3007, 3028  
 184229, 2389  
 184230, 2444  
 184510, 89, 2644, 2651  
 184635, 2532  
 184842, 1218  
 184893, 1280  
 184958, 883, 982  
 184959, 1282  
 184991, 295  
 185003, 1072, 1079  
 185094, 693, 705  
 185139, 83  
 185151, 3012, 3042  
 185190, 2660, 2756  
 185240, 2754, 3026, 3027,  
 3039, 3043, 3051  
 185241, 2754, 3026, 3027,  
 3039, 3043, 3051  
 185294, 86, 2654  
 185402, 2529, 2532  
 185450, 232  
 185506, 1073  
 185602, 1074  
 185673, 1072  
 185808, 2532, 2660  
 185809, 1072  
 185825, 232  
 185837, 3025  
 185897, 850  
 185933, 2532  
 186164, 1215  
 186203, 2634  
 186257, 91  
 186277, 2632  
 186314, 1072  
 186315, 1072  
 186332, 1020, 1063  
 186333, 704, 705  
 186387, 89  
 186388, 3082  
 186454, 883  
 186464, 705  
 186652, 313  
 186766, 90, 92, 2644  
 186775, 314  
 186997, 2767  
 187077, 1108  
 187090, 2630  
 187253, 1390  
 187263, 2655  
 187313, 83  
 187367, 705, 883  
 187369, 3070  
 187381, 1086  
 187479, 2764  
 187585, 696, 698  
 187590, 391  
 187605, 2717  
 187684, 2532  
 187813, 2924  
 187947, 92, 2640, 3069,  
 3080  
 188077, 563  
 188113, 90, 92  
 188188, 698, 853  
 188231, 869, 990  
 188341, 2756  
 188428, 289, 315  
 188431, 2877  
 188451, 2878  
 188503, 1114  
 188542, 3017, 3046  
 188546, 2660, 2767  
 188703, 2526  
 188823, 3080  
 188829, 1825  
 188901, 1357, 1389  
 188910, 2634, 3080  
 189009, 2924, 2977  
 189026, 2877  
 189133, 2588  
 189139, 2630  
 189140, 2643, 3073  
 189177, 291, 310  
 189238, 1218, 1250  
 189261, 2532  
 189330, 1218, 1250  
 189359, 72, 2631  
 189472, 943  
 189481, 2463  
 189703, 3017, 3029, 3037,  
 3039, 3041  
 189735, 286  
 189830, 1218  
 189834, 1210, 1218, 1250  
 189836, 150, 2999, 3015,  
 3016, 3018, 3031  
 189837, 150, 2999, 3015,  
 3016, 3018, 3031  
 189840, 2510  
 189863, 1389  
 189834, 705, 849  
 189865, 723, 985, 992,  
 998  
 189867, 2519, 2527  
 189882, 298  
 189942, 2874  
 189947, 2772  
 189971, 2660, 2756  
 190073, 2093, 2247  
 190091, 2689  
 190131, 2483  
 190217, 89, 91  
 190560, 2877, 2878  
 190569, 3079  
 190614, 848  
 190658, 2760  
 190660, 1375  
 190671, 2707  
 190838, 2647  
 190903, 2715  
 190958, 683  
 190964, 2733, 2736  
 191125, 2766  
 191326, 2999, 3059  
 191547, 2528  
 191596, 1063, 1070  
 191656, 1994  
 191723, 1210, 1212  
 191796, 2754  
 191839, 2492  
 191800, 1280  
 191912, 723, 853, 985,  
 992  
 191916, 683  
 192155, 1372  
 192406, 2635, 3072, 3074  
 192471, 1033  
 192472, 1020, 1093  
 192518, 1020, 1025  
 192533, 1030  
 192588, 2172, 2924  
 192666, 2543, 2595  
 192690, 73  
 192815, 1034  
 192883, 693, 705  
 193007, 683  
 193112, 125, 201

- 193136, 2769, 2776  
 193146, 2616  
 193166, 2462  
 193210, 3055, 3060  
 193301, 2530, 2532  
 193366, 883  
 193402, 705, 883  
 193404, 2761  
 193410, 690  
 193509, 3003  
 193514, 2745  
 193557, 2924  
 193696, 705  
 194127, 291, 313  
 194176, 1092, 1152  
 194326, 705  
 194744, 291, 313  
 194745, 291, 313  
 194767, 2532  
 194825, 2625, 2636, 2651  
 194864, 1342  
 194872, 284, 291, 309  
 194874, 2552, 2924  
 194879, 1131  
 194948, 1070  
 195286, 291, 310  
 195312, 2543, 2595  
 195313, 2543, 2595  
 195315, 232  
 195486, 1784, 2024, 2084  
 195578, 1342  
 195643, 292, 312  
 195670, 1072  
 195694, 2481  
 195724, 1072, 1073, 1080  
 195810, 1131, 1302  
 196017, 2532  
 196112, 705, 883  
 196113, 705  
 196114, 706  
 196152, 2510  
 196216, 1078  
 196251, 2910  
 196323, 705, 853  
 196371, 1070  
 196372, 927  
 196390, 291, 313  
 196604, 1020, 1027  
 196699, 2556  
 196730, 3009  
 196741, 226, 227  
 196763, 2805  
 196768, 2883  
 196829, 706  
 196907, 2569  
 197074, 955  
 197086, 3070  
 197153, 2678, 2694  
 197160, 291, 313  
 197161, 2527  
 197162, 2527  
 197163, 2527, 2530  
 197167, 2030, 2635  
 197195, 292, 315  
 197250, 92, 2647, 2765  
 197258, 1079  
 197346, 2525, 2530  
 197393, 924  
 197587, 291, 313  
 197589, 232  
 197749, 2880  
 197805, 2525, 2530  
 197983, 302  
 197965, 2639, 2641, 3056  
 198008, 2642, 3038, 3055  
 198061, 805  
 198241, 883  
 198154, 2716  
 198284, 1951, 2012  
 198473, 2760  
 198480, 231  
 198482, 3011, 3018  
 198703, 2555, 2924  
 198710, 2599, 2979  
 198711, 2537  
 198852, 2396  
 198985, 3017  
 199279, 291, 310  
 199559, 3038, 3055  
 199561, 697, 706, 719  
 199753, 425  
 199797, 2596  
 199885, 29, 43, 55,  
 562, 567, 613,  
 1675, 2017, 2623,  
 2625  
 199958, 1294  
 199973, 927  
 200023, 2655, 3070  
 200053, 683  
 200064, 2772  
 200136, 704, 706  
 200139, 2763  
 200149, 2753  
 200145, 415  
 200149, 2541, 3020  
 200150, 2385  
 200201, 2005, 3020  
 200210, 307  
 200265, 2634, 2635  
 200292, 1416, 1991  
 200293, 2923  
 200334, 150, 1909, 3021,  
 3033  
 200509, 2634, 2650  
 200595, 2672  
 200747, 1077  
 200774, 456  
 200320, 1217, 1218, 1220  
 200824, 2630  
 200870, 706  
 200916, 3033  
 200986, 853  
 201052, 291, 313  
 201060, 683  
 201191, 1073  
 201214, 2761  
 201215, 2923, 2956  
 201230, 2791  
 201233, 3011, 3018, 3037  
 201259, 273  
 201261, 2660, 2769  
 202267, 3057  
 201279, 853, 857  
 201306, 2923, 2947, 2966  
 201371, 1034, 1036  
 201372, 315  
 201393, 1919  
 201623, 2004  
 201907, 2392  
 201910, 3009  
 201914, 2589  
 201915, 86, 2656  
 202074, 2601  
 202132, 292, 315  
 202133, 2754, 2755  
 202229, 425  
 202254, 2568  
 202265, 2647, 2765  
 202349, 1020, 1030  
 202377, 1073  
 202393, 291, 313  
 202489, 1975  
 202560, 703, 723, 900  
 202631, 1211  
 202720, 2549, 3030, 3040,  
 3043  
 202763, 883  
 202778, 683, 685  
 202789, 232  
 203074, 2482  
 203082, 2464  
 203178, 3010, 3011, 3018,  
 3037  
 203190, 1784, 2962  
 203230, 272  
 203307, 2595  
 203308, 931  
 203377, 2005, 2017  
 203541, 1302, 1350  
 203642, 3011, 3019  
 203648, 291, 309  
 203649, 2557, 2622  
 203685, 2733, 2734  
 203745, 232  
 203747, 883  
 203748, 706



## • German

203740, 1236	206883, 77, 83, 2631	210499, 231
203750, 924	206901, 232	210519, 2493, 3020, 3025,
203791, 2523	206904, 2769	3030, 3033, 3042,
203792, 2523, 2532	206906, 2769	3043
203814, 683, 686	206949, 706, 892, 899,	210657, 1072
203820, 2648	987	210742, 1310
203847, 2774	206950, 3010, 3018	210778, 2753, 3020
203910, 2554, 2649	206999, 291, 313	210803, 723, 817, 985,
203924, 2732, 2733, 2736,	207018, 2761	990
2759	207154, 837, 897, 911	210804, 1099
203948, 1090	207155, 2527	210867, 2625, 2635
204058, 213	207156, 2531, 2533	210834, 2923, 2944
204163, 2519	207158, 706	211198, 2392
204215, 2636, 3067	207354, 125, 201, 2420	211199, 2392
204353, 666, 790	207355, 291, 313	211239, 2391
204354, 1300	207385, 2601	211267, 3077
204381, 2154	207425, 683	211348, 292, 312
204423, 1072, 1078	207554, 2558	211388, 2689
204460, 271	207636, 2650	211433, 1071, 1078, 1079
204470, 291, 313	207702, 2526, 2531	211479, 307
204512, 230	207741, 1924	211506, 231
204703, 666, 790, 1300	207743, 2768	211520, 3058, 3060
204730, 690	207760, 1072	211566, 232, 664
204807, 683	207761, 1301	211573, 3058, 3060
204868, 2647, 2891	207776, 291, 309	211735, 3077
204882, 683, 685, 689,	207813, 232	211799, 2530
706, 925	207888, 2525, 2528	211866, 1924
204883, 3023	208028, 1265, 1283	211871, 79, 2647, 2649
204921, 2524, 2530	208143, 723, 814, 985	211919, 883, 994
204922, 2391, 2526	208344, 2650	211956, 2640
204997, 853	208354, 1072, 1078	211999, 1152
205017, 1020, 1025	208373, 291, 313	212000, 1366
205018, 706, 883	208472, 89, 90, 91,	212051, 853
205034, 2476, 2705	2660	212263, 231
205067, 1293	208473, 2660	212423, 706, 999
205068, 1293	208487, 2528	212501, 853
205069, 1293	208635, 2392	212594, 88
205215, 1072	208636, 2525	212641, 3002
205263, 2528	208675, 569	212694, 114
205264, 2528	208740, 1124	212695, 231, 2496, 2612
205295, 2524, 2528	208790, 2532	212696, 231, 2618
205351, 693, 706	209161, 3070	212838, 296, 297
205464, 883	209276, 1273	212842, 2596
205683, 924	209396, 2875, 2899	212844, 3003
205762, 2923, 2956	209417, 3002	212868, 706, 853
205774, 917	209418, 3003	212893, 2523
205849, 2527	209428, 230	212900, 227
205850, 2523, 2528	209681, 1280	212901, 2530, 2533
205865, 2756	209848, 683	212908, 2523
205912, 1372	209923, 2630, 2649	212951, 2641
205962, 227, 3066	209943, 2390	212954, 2630, 2643, 3074
206223, 2678, 2698, 2709	209960, 1020, 1030	213123, 2560
206386, 2523, 2530	209961, 693, 706	213154, 2525
206471, 1779, 2674	209993, 2884	213589, 1306
206566, 161	210012, 2776	213709, 693
206619, 2524, 2528	210166, 878	213710, 883
206743, 291, 313	210167, 706, 853	214000, 274
206763, 452	210280, 79, 2630, 2649	214020, 2924
206877, 1283	210324, 706	214042, 2525, 2526

214151, 2396	217852, 2586	220711, 77, 87
214152, 2396	217929, 2924	220772, 2772
214155, 2408	218010, 2890	220838, 2533
214193, 1883, 1889	218298, 2880	220850, 454
214194, 2659, 2773	218324, 2877, 2882, 2895,	220851, 454
214244, 415	2898	220865, 2752, 2765
*214398, 1782, 2391, 2649,	218337, 2568	220889, 1310
2675	218346, 2861	220900, 2687
214399, 2777	218490, 90	221041, 87
214445, 869	218566, 232	221080, 2754
214512, 230	218570, 707	221081, 1783, 2542
214962, 2531, 2543, 2544,	218586, 2634	221099, 2679
2670, 2674	218671, 685, 707	221129, 693
215045, 231, 232	218725, 1114	221493, 2777
215273, 196, 292, 314	218726, 1207, 1209	221572, 2634
215336, 2518	218774, 231	221615, 1307
215608, 690	218779, 998, 1219, 1221,	221779, 1235
215672, 2589	1280	221797, 424
216090, 882, 883	218813, 693, 707, 708	221847, 1091
216107, 2777	218904, 2874	222131, 83
216214, 2766	218989, 2524, 2530	222153, 2650
216215, 2761	219074, 2641	222154, 2650
216264, 927	219085, 285, 2624	222191, 304
216284, 291, 309	219116, 3058	222193, 305
216307, 2581	219128, 2634	222236, 3000
216342, 1271, 1280	219162, 149, 150, 3015,	222248, 2586, 2589
216360, 2897	3016	222292, 2613
216391, 2628	219163, 149, 150, 3015,	222302, 292, 3072
216483, 1074	3016	222319, 2755
216518, 693, 700, 706	219204, 314	222450, 2399, 3010, 3018
216622, 231	219209, 2773	3024, 3025, 3026,
216629, 102, 105, 335	219400, 1208, 1280	3028, 3030
216657, 1073	219494, 693, 698, 707,	222512, 236, 2769
216669, 87, 2631, 2653	853	222534, 2659
216745, 924	219570, 276	222543, 2773
216798, 290, 305	219663, 2876	222624, 88
216824, 1036	219728, 2773	222629, 693, 707
216825, 1036	219759, 1280	222680, 985, 991
217022, 232	219789, 1235	222777, 231, 2613, 2647
217036, 1225	219829, 1283	222840, 683
217037, 924	219838, 231	222873, 87
217079, 693, 698, 706	219848, 2641, 3056	222893, 87
217080, 693	219918, 2548, 2766	223026, 707, 854
217128, 1899, 1900, 2623,	219977, 2876	223064, 683
2629	220051, 2628, 2630, 2640	223071, 2660
217237, 3071, 3083	220066, 287, 311	223195, 2882, 2884
217315, 1085	220228, 683, 2543, 3017,	223294, 79, 2647, 2649
217316, 567, 1725, 3064	3029, 3041	223301, 481
217335, 452	220322, 2392, 2585, 2593	223408, 945
217336, 428, 430	220349, 232	223554, 707, 854*
217476, 814, 985	220424, 297	223714, 2659, 2768
217550, 693, 698, 706	220484, 231	223736, 3067, 3069
217555, 2530, 2533	220493, 2765	223767, 2882
217560, 2769	220582, 236	223793, 3025, 3030, 3033
217561, 1290	220539, 707, 853, 854,	223819, 2877, 2920
217679, 232	994	223843, 683, 685
217722, 1111, 1121, 1132,	220632, 1030	223887, 707
1302	220634, 126	223922, 2905, 2920
217723, 1288	220670, 684	223925, 232

## German

223966, 2411	227387, 1090	230171, 2998, 3003
224153, 2975	227430, 431	230182, 1090
224320, 707, 896, 911, 917, 925, 937, 943	227490, 693, 707	230251, 2559
224330, 3056	227621, 1072	230252, 2559
224343, 231	227667, 2393, 2538	230394, 2646, 2649
224411, 290	227854, 931	230533, 1131
224566, 1300	227918, 2610, 2583	230534, 1207, 1223, 1289
224628, 900, 924	227966, 2616	230558, 2898, 3075
224806, 231	228042, 232	230585, 1092, 1152
224832, 2602	228381, 2709	230669, 231
225134, 3082	228421, 2607, 2613	230671, 2524
225153, 696, 707	228426, 707	230941, 89
225161, 89	228487, 683	231030, 3054
225196, 1283	228504, 2655	231090, 924
225197, 1283	228538, 1099	231148, 2768
225161, 2636	228544, 2004	231254, 3072
225239, 707	228613, 2517	231265, 3078
225282, 231	228639, 2768	231279, 91
225259, 2763	228696, 1210, 1223, 1290	231280, 2768
225321, 1063	228721, 307	231546, 708, 721, 983
225421, 1062, 1072	228830, 3064	231584, 883
225465, 2712	228849, 699	231599, 2905, 2920
225549, 77	228867, 3056	231614, 2622
225678, 2596	228872, 87, 2631	231643, 3078
225704, 230	228888, 3081	231652, 71, 88, 92
225705, 1114, 1115	228922, 1086	231676, 2877
225706, 703, 707, 720	228925, 931	231693, 87
225736, 2795	229001, 2556	231805, 708, 719, 854
225749, 2689	229070, 1086	231886, 924
225762, 2607	229096, 702, 723, 900, 985	231919, 2560
226107, 1203	229142, 703, 707	232044, 1073, 1081
226110, 806, 1300	229190, 2511	232186, 2683
226159, 2714	229274, 1111, 1123, 1132, 1303	232373, 1899
226219, 1223, 1287	229216, 854, 863, 946	232568, 232, 2630
226228, 2465	229292, 863	232569, 693, 708
226331, 1092, 1203	229379, 2732, 2735	232570, 1287
226422, 2390, 2924, 2961	229390, 297	232605, 2639
226521, 232	229412, 2731, 2734, 2735	232707, 3003
226598, 2905, 2920	229450, 3057	232784, 1301
226610, 1219, 1221, 1224	229535, 2604	232818, 2488
226792, 1215	229536, 2391	232873, 87
226793, 1265	229565, 1224	232895, 1079
226866, 2601	229638, 924	232926, 708, 854
226867, 693, 707, 712, 715	229676, 1385	233031, 723, 985, 990, 992
226887, 2768	229677, 79	233329, 2774
226912, 294	229678, 2394, 2402	233335, 2618
226942, 690	229711, 77	233370, 87
227012, 707, 854	229715, 2731, 2733, 2734, 2735, 2738	233383, 686
227095, 1152	229780, 697, 707, 854	233895, 2768
227100, 683	229837, 2732, 2735	233474, 2692
227130, 2877, 2895, 2920	229854, 2996	233514, 232
227198, 97, 3054	229863, 90	233517, 1308
227208, 3079	229906, 2763	233589, 2651, 3015, 3017
227238, 3053	229999, 1281	233627, 2630
227283, 1281	230042, 708	233648, 2589
227377, 723, 845, 985	230141, 87, 2631	233729, 708, 843, 847, 854, 896
	230170, 708, 1000	233786, 2769, 3010

233803, 2768 °	236090, 1073	237765, 3016, 3017
233967, 698, 708, 854	236157, 2502	237766, 3016, 3017
233982, 697, 698, 708	236159, 2597	237772, 2582
233983, 2747	236242, 2629, 3072	237780, 2778
234028, 3038, 3055	236260, 2705	237790, 2768
234056, 2630	236275, 2910	237796, 708, 854
234129, 924	236297, 2639	237816, 72, 89, 92
234150, 2684	236302, 2646, 2770	237834, 2561
234259, 720, 1218	236303, 2770	237835, 231
234264, 2395, 3024	236341, 723, 986, 990, 992	237877, 2841, 2870
234299, 2693	236369, 2561	238119, 313, 1074
234302, 2626	236385, 1218	238160, 2633
234303, 2626	236395, 854	238252, 2613, 2607
234339, 2587	236427, 2560	238279, 2512
234500, 2614	236537, 71, 72, 88, 92	238293, 1081
234509, 720	236584, 91	238340, 907, 920, 924
234580, 3002	236537, 71, 72, 88, 92	238348, 3025, 3036, 3038, 3045, 3082
234672, 2625, 2635	236584, 91	238361, 92, 2614, 3057
234744, 2769	236584, 91	238367, 854
234793, 684	236591, 2420	238368, 854
234806, 236, 2775	236613, 2582	238369, 708, 854, 1288
234849, 683, 840	236619, 336	238370, 723, 916, 985, 991
234861, 3070, 4071	236669, 1073, 1078	238371, 1119
234927, 2633, 2638	236705, 943	238382, 2567
235000, 854	236817, 92	238459, 903, 946
235015, 3070	236880, 1280	238569, 708
235134, 90, 2660	236907, 2646, 2649	238937, 2746
235157, 1085	236908, 2647, 2648, 2651	238958, 854
235160, 2687	236913, 2765	239060, 1223, 1289
235213, 924	237015, 2912	239060, 2898
235219, 87	237034, 1078, 1081	239071, 2650
235220, 2639	237081, 271, 288, 292	239072, 1280
235299, 693, 708, 883	237150, 2401	239075, 3003
235300, 2556	237151, 3025, 3028, 3051	239077, 2389
235325, 88	237152, 3074	239163, 2008
235366, 86	237200, 88	239214, 91
235381, 3057	237210, 3016, 3017, 3056	239486, 2879
235400, 2694	237215, 1073, 1079	239530, 2419, 2422
235421, 1006	237232, 686	239555, 2643
235476, 91	237238, 1375	239648, 854
235602, 2633	237240, 88	239649, 854
235601, 231	237261, 3074	239675, 315
235662, 854	237436, 924	239697, 2401
235669, 924	237474, 338	239701, 2671, 3017, 3031, 3053
235701, 232	237561, 1212, 1235, 1239, 1250	239702, 1072
235752, 3003	237562, 697, 708, 854	239703, 1072
235765, 854	237599, 3017, 3031	239733, 2660
235776, 854, 2625	237601, 2880	239773, 1787, 1889
235800, 1209, 1212	237607, 1030	239809, 925, 1006
235814, 2679, 2685	237666, 2638	240037, 592
235852, 270, 344 °	237684, 700, 723, 883	240046, 2894
235868, 854	237716, 87, 2631	240082, 74, 2653
235870, 1031	237717, 86	240188, 3053
235899, 2597	237718, 149, 3053	240242, 87
236013, 2684	237743, 2775	240249, 2763
236035, 314	237744, 87, 2632, 2647	240474, 1212
236044, 924		
236056, 2538		
236089, 1073, 1079		

## German

240501, 2681, 2690	243845, 2964	246443, 2766, 2773
240563, 2583, 2610, 2655	243846, 2983	246464, 2595
240584, 2760	243849, 1006	246505, 2585
240671, 2524	243892, 717	246554, 920, 925, 927
240751, 2632, 3020, 3030,	243913, 1073	246568, 2422
3056	243947, 664	246615, 708
240837, 683	243949, 730	246651, 3032, 3035
240846, 91, 3070	244042, 2894	246657, 3032, 3035
240904, 2681, 2690	244098, 2633	246658, 314
240951, 2752	244131, 1078	246661, 3011
241282, 311	244206, 1091	246708, 315
241292, 2608	244362, 708, 714	246712, 708, 884, 890
241404, 683, 1310	244375, 2630	246730, 2626, 2634
241500, 1213, 1298	244402, 1209, 1210, 1217	246939, 2875
241683, 87	244452, 1006	246967, 2402
241710, 723, 846, 986,	244501, 88	247005, 1099
1413	244510, 2655	247045, 2645
241767, 1273	244560, 2493, 2608, 2620	247095, 2625
241781, 92, 2614, 2615,	244602, 3000	247096, 2625
3057	244669, 664	247119, 305
241820, 2581, 2614	244732, 1310	247177, 2588
241882, 883	244816, 2994	247181, 236, 2774
241887, 2760, 2761	244834, 2007	247237, 2614
241894, 1212, 1213	244838, 1152	247350, 2588
241898, 3000	244840, 708, 884, 890	247418, 2632
241921, 87	244841, 1091	247453, 929
241963, 3059	245100, 2635	247695, 1072
241973, 2558	245108, 2724	247722, 2878
242168, 458	245148, 2776	247734, 2076
242210, 699	245168, 3002	247827, 2630
242288, 708, 719, 855	245319, 1091	247846, 2586
242289, 3012, 3025, 3028	245440, 2635	247852, 904
242312, 1080	245492, 708	247898, 2588
242515, 1276	245504, 2613	247950, 1271, 1281
242467, 3027, 3029, 3035,	245569, 1091	248001, 1031
3038, 3043	245570, 1020, 1031	248055, 305
242688, 1078	245574, 2633, 2635	248172, 88, 2654
242780, 2583, 2708, 3019,	245575, 72, 2636, 2653,	248290, 708
3056	3007	248303, 88, 2653
242888, 1073	245621, 1036	248349, 2629, 3075
242980, 1006	245699, 2462, 2464	248484, 2762, 2775
243067, 2422	245709, 2614	248559, 2624, 3020, 3030,
243068, 2645, 3053	245745, 664	3056
243225, 3003	245837, 2630	248592, 2603
243226, 1006B	245994, 2712	248602, 2583
243233, 2064	246030, 2512	248857, 955
243325, 1072	246035, 956	248946, 3053
243347, 2766	246038, 2770	249002, 83, 2633
243544, 1358, 1362	246067, 1072	249246, 1004
243581, 3009, 3021, 3040	246077, 931	249256, 2629, 3075
243613, 1073	246081, 3042	249272, 2012
243658, 2624, 2633	246180, 1073	249328, 708, 993, 994
243659, 2633	246240, 1235, 1239	249329, 994
243692, 2526	246242, 2302	249330, 1033, 1063
243797, 926, 927	246289, 307	249333, 2993, 2994
243787, 1091	246341, 683	249447, 697, 904
243797, 3004	246377, 904, 946	249535, 2493, 3016
243839, 717, 855, 925	246382, 2545	249847, 1079
243840, 708, 995	246413, 2607	249856, 683, 708

249943, 3065	253309, 2620	250237, 1680, 1339
249983, 28	253320, 1073	256351, 329, 1880
250029, 2584, 2614	253371, 2630	256407, 2008
250037, 2977	253437, 2773	256524, 933, 935
250085, 946	253467, 814	256572, 2956
250243, 1031	253492, 1075, 1076, 1081	256595, 1086
250263, 1094	253493, 1028, 1081, 1282	256651, 2585
250275, 304	253494, 686	256658, 314
250280, 2711	253517, 2775	256750, 2483
250281, 2770	253518, 2775	256753, 3080
250310, 1072	253519, 2775	256788, 534, 2048
250356, 2772, 2905, 2996	253791, 2597	256855, 904
250357, 76, 2654	253892, 1079	256856, 2769
250377, 925	253984, 2400, 2693	256857, 2557
250421, 2393, 2584	254006, 1006	256922, 3006, 3046
250596, 92, 2654	254015, 1006B	256964, 314
250623, 1073	254029, 88	257065, 2721
250736, 3071	254044, 1003	257144, 2632, 2649, 2650
250743, 2527	254069, 2391	257188, 917
250772, 1075	254083, 3051	257227, 3074
250774, 1073	254093, 3015	257237, 2633
250909, 3083	254193, 2607	257368, 1074
250968, 884	254253, 1310	257424, 1073
251100, 2391	254362, 1093	257459, 3077, 3078
251237, 2393, 2538	254385, 3013	257537, 1079
251244, 2639, 2653	254411, 2768	257544, 600
251258, 168	254434, 2979	257559, 1389
251259, 2550, 2761, 2765	254438, 2483	257572, 2907
251351, 2391, 2547, 3027, 3046	254441, 3009	257573, 1389
251353, 1031	254474, 933, 935	257609, 600
251372, 2537, 2764	254496, 2597	257642, 933, 935
251907, 456	254525, 3070	257769, 921, 933
251934, 941	254623, 2563	257809, 723, 884, 892,
252050, 2633, 2638	254709, 2493	986
252156, 1006A	254754, 1444	257814, 2761
252158, 2528, 2540	254762, 3071, 3078	257827, 921, 933
252164, 1006B	254801, 2630	257854, 2827, 2837
252179, 73, 3072	254840, 1310	257875, 2615
252180, 76	254866, 312	258057, 2402
252193, 2764, 2769	254870, 3072	258146, 904
252272, 1006	254913, 2557	258250, 2768
252276, 1006, 1339	254992, 2763	258261, 1073, 1078
252275, 1006	255067, 1727	258295, 685, 700, 894
252321, 660	255300, 2422	258341, 959
252373, 1402	255302, 3077, 3078	258342, 921
252374, 723, 829, 986	255441, 802	258351, 1362
252411, 330	255454, 1075, 1310	258354, 917
252412, 304, 1075, 1087	255488, 683, 686	258370, 2589
252439, 307	255535, 1080	258385, 884
252661, 72, 2653, 3007	255549, 77, 87	258471, 2614
252705, 2775	255648, 1072	258543, 2580
252706, 3007	255692, 2391, 2548, 3028	258554, 1261, 1291
252707, 2995, 2996	255704, 3008, 3043	258555, 2466
252708, 2995, 2996	255732, 855	258634, 2560
252841, 2633	255747, 1073, 1078	258683, 1270, 1362
252756, 2389	255853, 307	258684, 2560
252997, 916, 939	255903, 2956	258752, 2625
253080, 849	255953, 2762	258766, 1073
	256234, 1339	258810, 2634, 2648, 2650

## German

258879, 3012	261735, 683	264921, 1295
258935, 709, 854	261800, 1310	264951, 71, 2653
259136, 2880	261848, 294	264952, 71, 2653
259208, 1072	261874, 730, 817	265025, 1857, 1858,
259248, 98, 2628, 2649,	261878, 2509	1859
3014, 3021	262002, 1072	265059, 2565
259362, 1271	262005, 2599	265075, 1073
259421, 2647	262022, 2608	265076, 956
259576, 1223, 1295	262092, 2761, 2765	265154, 664
259647, 920	262128, 1073	265167, 306, 1028
259648, 927	262183, 1073	265220, 2766
259649, 927	262241, 1074	265274, 961
259666, 2603	262252, 2629	265294, 1006
259691, 271	262253, 2643, 2653, 3075	265328, 956
259702, 1006	262326, 1063	265413, 855
259764, 1271	262393, 1400	265483, 206
259815, 884	262464, 672, 709, 988,	265536, 304
259816, 90, 2655	1276	265584, 1080
259817, 1006.1	262466, 1299, 1309	265628, 28
259840, 2766, 2773, 3050	262467, 1020, 1026, 1036	265638, 1074
259870, 1006	262468, 315, 1032	265640, 1207, 1209
259871, 1006	262473, 311, 930	265650, 2687
259872, 1006	262501, 412	265724, 1218
259877, 683, 690, 847	262552, 3081	265835, 1129, 1301
259995, 939	262610, 1073	265832, 3017
259996, 1006.1	262709, 2602	265911, 3017
260010, 1006	262728, 683	265915, 2776
260134, 709	262823, 1006	266096, 314
260156, 1079	262838, 2300	266097, 1924
260177, 1975	262868, 3064	266122, 305
260278, 2650	262882, 1074	266140, 28, 2631
260306, 611	263017, 2483	266190, 1111, 1121
260415, 1080	263027, 2762	266345, 709, 1005
260479, 2644, 3070	263056, 1793, 2672, 3032	266359, 2715
260499, 1006	263109, 2775	266384, 2578, 3059
260555, 1363	263120, 791	266401, 312
260604, 2962	263167, 1028	266518, 1400
260650, 87, 2655	263200, 1281	266549, 1207
260655, 1363	263201, 1074	266600, 3017
260756, 1006.1	263285, 1074	266617, 2695
260758, 698	263287, 917, 1203	266699, 314
260758, 683	263389, 1400	266698, 315
260804, 689	263392, 1111, 1120	267138, 1223, 1354
260812, 2634, 2648	263393, 1073	267199, 456
260933, 2597	263404, 2391, 2548	267205, 2394
260948, 683	263612, 1006	267206, 1006B
260984, 3008	263652, 724	267227, 2964
260991, 1207	263716, 2484	267260, 2995
260992, 1006	263786, 2630	267328, 2586
261027, 684, 709	263851, 1073	267370, 3054
261259, 454	263941, 1092, 1233	267374, 1072
261306, 701	264246, 2524	267407, 1793
261307, 1310	264502, 2966	267509, 2554, 2625
261341, 2876	264567, 2763	267513, 1207
261506, 1094	264640, 1222, 1291	267514, 1006A
261507, 1006	264653, 2513	267557, 3017
261605, 1078	264709, 1073	267563, 2684
261608, 1073	264783, 213	267595, 1006B
261634, 724, 813, 986	264920, 306, 1020, 1028	267731, 2644, 3070

267868, 1114		272097, 1072	275857, 2755
267869, 724	846, 986	272121, 3010	275882, 107, 2671
267871, 700		272130, 1308	275908, 1073
267873, 1307		272158, 956, 1006, 1389	275962, 3044
267874, 700		272339, 3060	276013, 3035, 3043, 3044
267992, 2681		272391, 2548	276069, 711
268003, 1310		272474, 1026, 1031	276082, 2633
268261, 91, 2655		272475, 1020, 1026, 1031	276133, 855
268308, 2527		272562, 2523	276134, 2602, 2771
268330, 1073		272572, 2523	276553, 2611
268410, 884		272608, 1271	276570, 1073, 1079
268489, 3057		272638, 668, 940	276661, 2618, 2691
268570, 2590		272695, 3059	276665, 1273
268583, 1079		272918, 1075	276718, 850
268602, 1072		273029, 3011, 3054	276720, 900, 941
268626, 2387, 2538		273045, 1072	276764, 2994
268627, 3046		273101, 3000	276814, 731
268649, 1072		273192, 2769	276986, 917
268815, 1265		273235, 428	277031, 226
268828, 869		273261, 2768	277049, 2085
268880, 1073		273277, 1310	277054, 940
269193, 3011, 3054		273292, 955	277092, 817
269238, 884		273311, 442	277111, 2511, 2995, 2996
269246, 2024		273344, 3024	277151, 2630
269380, 225		273389, 611	277187, 2501
269475, 2387		273481, 3083	277188, 2501, 2995
269539, 1073		273498, 2583	277222, 1203
269656, 812		273560, 2679	277263, 2613
269659, 2768		273652, 2602	277324, 1265
269787, 87		273665, 1235	277385, 293
269774, 1075, 1076		273706, 3008, 3012, 3044	277435, 693, 697
269960, 664		273761, 1036	277490, 698, 2614
269994, 312		273800, 37, 93	277529, 3059
270043, 2560		273936, 2623	277594, 2964, 2967
270051, 3067		273942, 1072	277605, 2592
270062, 917, 1203		273958, 2720	277640, 1271
270272, 2762		274044, 2640	277653, 2513, 2673, 2777
270273, 1078		274165, 884, 892, 986	277717, 689
270314, 3057, 3082		274179, 2764, 2772	277726, 1132
270571, 1975		274202, 2468	277854, 1310
270580, 3044		274260, 3008, 3044	277895, 1075
270618, 3065		274345, 1111, 1120, 1122	278064, 1310
270757, 1082, 1203		274346, 944, 986	278084, 2590
270929, 2421		274550, 91, 3070	278153, 1310
271002, 1028		274658, 72	278249, 3023
271020, 2649		274663, 1071	278443, 1080
271077, 1207		274873, 797	278480, 2776
271147, 2525		274875, 2770	278492, 308
271157, 2525		275016, 2648	278705, 3081
271215, 88, 2634, 3073		275160, 2764	278867, 989, 990
271432, 2561		275343, 916	278902, 956
271625, 1358		275388, 1235	278908, 956
271642, 1293		275463, 2608, 2609	278933, 2589
271656, 85		275464, 1079	279007, 693, 697
271747, 2625		275518, 916	279074, 1276
271786, 1086		275662, 334	279102, 300
271822, 1310		275663, 916, 940	279121, 837
271898, 2778		275751, 1072, 1354	279127, 2579
271926, 1209		275832, 312	279131, 996



## German

279133, 933	281473, 2398	285752, " 27, 282
279187, 151	281497, 1859	285888, 1075
279411, 294	281518, 689	285913, 1073
279506, 2772	281541, 2761	285923, 802
279517, 294	281687, 2766, 2773	285978, 2486
279622, 271	281688, 2766	285990, 2501, 2995
279638, 3060	281758, 2568	286074, 300
279819, 1073	281830, 461	286086, 935
279958, 2389	281877, 2583, 2766	286106, 458
279991, 209	281939, 2768	286120, 2607, 3057
279993, 698	282050, 271, 278	286122, 900, 996, 1268
280088, 1073	282057, 3062	286148, 2400
280111, 3047	282088, 1086	286173, 3053
280133, 2614	282253, 801	286182, 2995, 2996
280144, 2763	282266, 2488	286210, 312
280196, 2689	282367, 2562	286297, 87
280216, 2763	282747, 1218, 1291	286361, 2560
280317, 271	282748, 922	286362, 476
280376, 2582	282789, 3070	286381, 1073
280377, 2548	282850, 2768	286400, 2996
280427, 1073, 1078	282950, 310	286514, 689
280429, 1073, 1078	282951, 310	286568, 2768
280430, 1073	283065, 1207	286596, 1501
280455, 307	283107, 293	286601, 304, 1075
280476, 304	283163, 3001	286719, 917
280499, 910	283199, 271	286751, 938, 939, 994,
280523, 1073	283212, 846	995
280532, 1078	283286, 91, 3070	286771, 2687
280595, 2768	283304, 2024, 2626, 2691	286784, 2944
280622, 2896	283535, 693	286812, 2501
280648, 2773	283601, 1290, 1296	286872, 3001
280849, 1310	283696, 1924	286873, 2756
280850, 2769	283732, 2282	286933, 2841
280863, 959, 1313	283746, 3051	286972, 1239
280960, 1111, 1121	283790, 1359, 1392	286973, 996
280965, 1001	283824, 896, 910, 918	286991, 936
280966, 693, 697	283931, 315	286992, 922
280967, 813	284042, 869, 878	287009, 918
281005, 1223, 1266	284053, 1392	287015, 308
281044, 3005	284410, 1037	287016, 316
281084, 693, 940	284586, 1073	287073, 3054
281133, 1359, 1370, 1388,	284607, 1073	287078, 1078
1392	284628, 299	287079, 1073
281135, 1219, 1222, 1271,	284636, 1218, 1283	287240, 615
1281	284672, 2548, 3028, 3045	287307, 869, 879
281211, 994	284681, 253, 300	287360, 2996
281225, 2548	284715, 309	287471, 1092
281262, 2513, 2540, 2670	284815, 918	287589, 1222
2777	284995, 1219, 1221, 1223,	287649, 3001
281265, 2583, 2589, 2618	1280	287745, 3013, 3044
281268, 2513, 2763,	284996, 3001, 3002	287748, 2560
281302, 2611	285023, 2633	287755, 1307
281304, 2607	285050, 417	287784, 1219, 1221, 1223
281317, 945	285190, 2415	287789, 2560
281337, 3002	285259, 933, 935	287795, 814, 838
281373, 2582, 3047	285285, 1788	287796, 2535
281374, 3046	285323, 1894, 2641	287897, 2423
281424, 2682, 2898, 3075	285354, 944	287933, 2400
281454, 2768	285698, 917	287955, 3070

287068, 2635	291652, 2713	297084, 2510
289013, 1073, 1075	291775, 79, 1307	297149, 2675, 2752
289018, 270	291792, 1111, 1121, 1150	297324, 562
288159, 898	291794, 2994	297374, 805
288184, 2638	291802, 3058	297440, 311
288266, 3002	291854, 315	297442, 2996
288267, 2532, 3034	291886, 1072	297504, 3008, 3013, 3014
288320, 298	291978, 2486	297758, 664
288321, 2778	292004, 1074	297901, 844
288322, 1072, 1075	292213, 2638	297902, 1518
288347, 2764, 2772	292242, 1151	297903, 844
288362, 1975	292371, 1073, 1079	297955, 3052
288405, 1072	292385, 989	298200, 935
288459, 2068	292482, 2424	298412, 980
288477, 1071	292487, 1072	298418, 2054
288496, 946	292542, 1870	298420, 1931
288583, 2560	292543, 2023	298491, 1296
288648, 1080	292589, 3045, 3058	298539, 2084
288655, 2980	292622, 990, 1268	298565, 1930
288670, 1209	292727, 1094	298566, 1930
288720, 271	292728, 1308	298806, 3034
288767, 1031	292794, 1073	298822, 2388
289155, 594	292809, 1073	298844, 1400
289157, 2501	292817, 3018	298846, 1005
289162, 1308	292864, 449	298911, 695
289259, 1072	292951, 2542, 2675	298932, 1858
289446, 2980	292959, 2997	298951, 1004
289497, 2400	293011, 2996	298952, 685
289498, 2548	293261, 3013	299001, 1005, 1006
289503, 939	293394, 311	299002, 1006
289524, 1308	293541, 1310	299003, 1006
289562, 938, 995	293751, 2602	299004, 1006
289563, 938	293864, 3018	299005, 1006
289565, 2777	293967, 1310	299006, 1006
289569, 1074	294079, 566	299007, 1005, 1006
289599, 959	294107, 2774	299035, 1296
289687, 2445	294683, 2400	299036, 3010, 3013
289745, 899, 989	294724, 2996	299181, 3014
289795, 916	294912, 1024	299310, 2609
289844, 697	294993, 929	299643, 918
289990, 1073	295035, 1071	299681, 844, 1004
290126, 344	295043, 28	300035, 1400
290131, 28, 569, 2637	295044, 1207	300036, 1292
290240, 1036	295170, 1071	300041, 688
290444, 2638	295573, 922	300061, 1400
290534, 1073	295708, 1219, 1222	300069, 1815, 2054
290544, 2583	295747, 1063	300079, 2024
290680, 305	295764, 3013, 3044	300632, 1006B
290702, 3001	295889, 3010, 3013, 3014	300715, 1400
290733, 1073	295906, 1350	300716, 1296
290835, 1072	296053, 27, 657, 3022	300740, 1973
290877, 946	296205, 3013, 3044	300763, 1296
290938, 2528	296206, 3047	300844, 1815
291239, 1073	296272, 3057	300908, 3047
291299, 2582	296282, 2996	301274, 2997
291307, 458	296405, 3080	301352, 1004
291308, 458	296501, 2552	301321, 1006B
291426, 1063, 1070	297030, 3047	301374, 2768
291578, 2961	297075, 311	301449, 3010, 3014

## • German

301550, 1443	306103, 2595	311959, 936
301623, 1006A	306107, 73	312024, 1244
301712, 1401	306131, 3013	312087, 229
301791, 1401	306353, 1005	312088, 921
302158, 2775	306366, 660	312177, 2597
302255, 1443	306451, 1005	312178, 513
302330, 2004	306523, 2389	312286, 847
302433, 1400	306818, 96	312304, 3073
302460, 2394, 2064	307075, 3029	312392, 3074
302461, 1006B	307087, 306	312493, 934
302495, 1006B	307120, 2066	312577, 663
302534, 1402	307121, 1400	312639, 687
302583, 926	307123, 2768	312666, 2597
302611, 3061	307125, 2537, 2541	312726, 1400
302671, 688, 848	307357, 2522	312736, 2597
302673, 2997	307471, 334	312775, 1084
302753, 1268	307550, 3005	313046, 1443
303018, 3001, 3045	307651, 1004	313881, 2763
303047, 2028	307663, 306	314119, 2806
303079, 930	307699, 2768	314210, 2501
303123, 1392	307701, 2125	314293, 750
303255, 695, 1005	307702, 2125	314311, 504
303306, 2557	307752, 1400	314317, 1854, 2251
303530, 3008, 3013	307825, 2699	314318, 1884
303557, 1229	308043, 2469, 2501	314548, 2557
303842, 1006A	308214, 253	314627, 1088
303891, 2768	308615, 2583	314943, 2996
303926, 2779	309103, 2995	316696, 664
303979, 2947	309104, 2995	317166, 1402
304002, 701	309155, 661	317181, 2644, 2651
304006, 2602	309173, 1006B	317412, 2536
304214, 660	309260, 2246	317589, 2388
304224, 3036	309545, 2602	317979, 1400
304322, 1005	309551, 293	316098, 664
304349, 660	309555, 330, 355	316214, 1005
304384, 2768	309630, 303	316216, 2412
304399, 664	309636, 2067	316217, 2412
305061, 1006B	309669, 281	316253, 1005
305062, 1006	309981, 1098	316346, 2426
305082, 1006A	310072, 1401	316497, 1402
305118, 657	310293, 1388, 1392	316592, 664
305120, 664	310554, 294	316604, 2492
305122, 1401	310623, 1006A	316677, 1005
305123, 1400	310681, 2148	316696, 664
305124, 1005	310783, 2778	316858, 1399
305125, 2995	310859, 695	316995, 664
305151, 3008	310894, 2776	317145, 3049
305171, 1005	311018, 921	317267, 2778
305179, 2738	311019, 921	318136, 1006B
305348, 3008, 3013, 3014	311217, 2424	318221, 1401
305418, 1031	311234, 807	318285, 1006B
305429, 2998, 3003	311294, 2977	318509, 2778
305430, 2998	311500, 3044	319079, 2651
305512, 2125	311557, 3080	319280, 2651
305532, 1006B	311767, 936	319613, 2646
305553, 1005	311812, 2425	321618, 1006B
305690, 664	311876, 2767	321981, 1005
305884, 3008, 3013	311877, 2653	322047, 2639
305915, 989, 990	311933, 294	322285, 1006B

322586, 3007  
322746, 3002  
322836, 2649  
322843, 1006.1  
323026, 2067  
323434, 2637  
323533, 2397  
323784, 3067  
323785, 3067  
323961, 1004  
329759, 1073  
332056, 1073  
361761, 1086  
362721, 3055

**HOLLAND**

**Applications**

27, 2391  
96, 3022  
103, 2548  
189, 2632  
229, 2525  
582, 2633  
586, 2653  
703, 1006  
743, 3069  
917, 2550  
1665, 3069  
1669, 2632  
1670, 2632  
4737, 3069

**Patents**

110, 3072  
585, 74  
586, 74  
743, 3069, 3074  
764, 985  
782, 3076  
1172, 1251  
1218, 2959  
1380, 2770  
1476, 3020  
1538, 331  
1763, 304  
1793, 2777  
1796, 2777  
1813, 2469  
1848, 93  
1859, 2776  
1970, 2600  
2040, 2608  
2065, 904  
2089, 2623  
2187, 2776  
2207, 3068  
2395, 273

2430, 2400  
2484, 3001  
2517, 923  
2581, 2498  
2806, 2772  
3146, 3014  
3352, 3073  
3670, 2806  
4927, 2655

**HONG KONG**

June 13, 1890, 77

**HUNGARIAN**

**Applications**

1665, 3068  
2285, 2770  
3134, 660  
3206, 2636  
3460, 2778  
3568, 2631  
3716, 664  
3748, 2993  
3806, 308  
3822, 2631  
4348, 308  
5268, 2632  
5424, 2632  
5473, 2632  
5476, 2632  
5679, 2777  
5934, 2630  
A 1518, 1006  
A 1561, 1006  
A 1675, 2629, 3064  
A 1768, 1006  
A 1788, 1006  
A 1789, 1006  
A 1826, 664  
A 1829, 3013  
B 5478, 2760  
B 6257, 2653  
B 6356, 1402  
B 6377, 1909  
B 6460, 1006.1  
B 6588, 1400  
C 1516, 1006.1  
C 1908, 1874  
C 1909, 1874  
C 1910, 1874  
C 2133, 1006.1  
C 2305, 2995  
C 2383, 2995  
C 2384, 2995  
D 1907, 2630  
D 2389, 664

E 1569, 3010  
E 1796, 657  
E 1897, 2397  
E 1952, 2420  
E 2032, 664  
F 2787, 1005  
F 2789, 1911  
F 3082, 2397  
F 3169, 1005  
G 67, 1402  
G 3096, 3042  
G 3210, '91, 3042  
G 3227, 2636  
G 3227, '91  
G 3306, 3015, 3017, 3042  
G 3378, 1401  
G 3435, 1102  
G 3460, 2559  
G 3896, 2655  
H 4243, 2648  
H 4283, 2632  
H 4930, 2775  
I 1338, 2964  
K 3937, 3042  
K 5069, 2675  
K 5168, 3043  
K 5579, 2626  
L 2738, 3064  
L 3079, 2633  
L 3294, 3045  
L 3329, 2637  
L 3420, 2637  
L 3470, 3050  
M 3691, 3026, 3031, 3037  
3042  
M 3798, 3042  
M 3799, 2896  
M 3998, 2684  
N 952, 149, 150, 3015,  
3016  
N 1173, 2775  
N 1174, 1005  
N 1175, 1005  
N 1228, 1006B  
N 1234, 1006B  
N 1235, 1006B  
N 1238, 1006B  
N 1349, 1006B  
O 674, 2399, 3001, 3029  
P 3702, 660  
P 6490, 2645  
R 2398, 3042  
R 3126, 2527  
S 543, 1005  
S 2581, 1006B  
S 2847, 2394  
S 5155, 664  
S 5269, 1006B  
S 5679, 2763

## •Hungarian

† 5932, 2645  
 † 5954, 1006*B*  
 † 6073, 3042  
 † 6079, 3065  
 † 6094, 1006*A*  
 † 6308, 1006*B*  
 † 6394, 2640  
 † 6439, 2634  
 † 6451, 3077  
 † 6614, 664  
 † 6854, 3010  
 † 2215, 1401  
 † 1171, 3082  
 † 2966, 3042  
 † 3033, 2625  
 † 3183, 2460  
 † 3204, 3042

## Patents

Jan. 9, 1896, 3063  
 July 13, 1898, 2659  
 Aug. 31, 1898, 3024  
 Nov. 8, 1898, 3024  
 Sept. 22, 1899, 3082  
 Nov. 12, 1903, 3070  
 Mar. 22, 1904, 3068  
 3096, 3016  
 4432, 2768  
 11539, 3075  
 15475, 1151  
 15502, 1161  
 15503, 1151  
 21050, 1190  
 25533, 1151  
 25574, 1151  
 26477, 1152  
 32779, 1152  
 35866, 2398, 3007, 3029  
 41504, 1152  
 42940, 2768  
 43499, 2768  
 49163, 1152  
 52393, 3075  
 55647, 3075  
 58767, 3075

## INDIAN

## Applications

116, 1900, 2748  
 414, 1901, 1856  
 196, 1902, 852  
 219, 1902, 853  
 394, 1902, 2947  
 406, 1902, 2538  
 158, 1903, 852  
 26, 1904, 857, 870

298, 1904, 709  
 118, 1905, 2947  
 134, 1905, 1784  
 162, 1905, 2623  
 214, 1905, 2654  
 215, 1905, 2654  
 268, 1905, 2629  
 238, 1906, 2712  
 333, 1906, 1082  
 356, 1906, 2555  
 509, 1906, 2712  
 248, 1907, 2649  
 572, 1907, 928  
 77, 1908, 927  
 130, 1908, 2976  
 173, 1908, 928  
 57, 1909, 2512  
 470, 1909, 657  
 467, 1910, 2651  
 45, 1911, 3043  
 473, 1913, 2518, 2980

## Patents

March 28, 1890, 77  
 April 24, 1890, 77  
 59, 2771  
 272, 927  
 273, 927  
 340, 920  
 507, 2558  
 537, 2765  
 691, 2768  
 692, 2768  
 693, 2768  
 694, 2768  
 695, 2768  
 726, 2768  
 2423, 1370  
 2523, 1288  
 2847, 1300  
 3203, 1024  
 3221, 851  
 3516, 2947  
 3640, 1076  
 3775, 1033  
 3895, 849  
 3854, 930

## ITALIAN

97/215/05, 2398, 3007,  
 3029  
 Aug. 17, 1878, 1629,  
 1804, 2973  
 Sept. 30, 1884, 2616  
 Sept. 30, 1886, 2891  
 April 16, 1889, 2251  
 Dec. 5, 1889, 103  
 Mar. 7, 1890, 2748

Sept. 9, 1896, 2659  
 May 31, 1899, 2094  
 Dec. 1, 1904, 2755  
 April 17, 1905, 3009  
 Sept. 4, 1913, 1301  
 187/261, 1152  
 245/84, 1342  
 314/86, 1152  
 139/153, 1152  
 189/196, 1152  
 246/85, 1342  
 356/89, 2623, 2626  
 34, 377, 2768  
 13649, 2604  
 15031, 2688  
 16316, 274  
 17146, 2616  
 17844, 2622  
 19109, 1875  
 20774, 1224  
 21840, 2575  
 22994, 1825, 2949  
 25381, 1224  
 •27843, 1390  
 27943, 2622  
 28964, 1812  
 29266, 2036  
 29852, 1956  
 30024, 5  
 30264, 1956, 1973  
 30780, 2622  
 30856, 2622  
 31391, 3058  
 31611, 2975  
 31932, 2651  
 32338, 2028  
 32656, 2622  
 32809, 2958  
 32886, 2700  
 33347, 3062  
 34559, 534, 2048  
 34706, 2247  
 47889, 3025  
 57464, 1161  
 54742, 1161  
 62042, 149, 2399, 2494,  
 3006, 3024, 3025,  
 3028, 3030, 3040  
 72048, 2172  
 72049, 2172  
 73092, 2172  
 87558, 2735  
 91466, 2735  
 96193, 2768  
 96194, 2768  
 101262, 149, 3031, 3053  
 101627, 5  
 102133, 3061  
 103978, 149, 150, 3015,

# INDEX OF PATENTS

3207

3016	120985, 900	131544, 2636
104615, 2735	121278, 1006	131808, 2639
107206, 2754	121522, 2639	131878, 664
109508, 2524	121542, 1006 <i>B</i>	131889, 2655
111151, 1006	121670, 400	131958, 2995
111641, 1005	122398, 2651	132127, 1401
112260, 3075	122600, 3024	132219, 3081
112272, 2735	122739, 1033	132220, 3081
112451, 3075	122772, 3004	132230, 2026
113253, 2642, 2654	122890, 3014	132255, 1400
113368, 1004	123585, 2653	132523, 1401
113697, 1006	123666, 2755	132530, 1400
113841, 1005	123943, 921	132825, 3050
113943, 1006 <i>B</i>	124140, 843	133188, 3050
114024, 1400	124141, 709	133197, 2634
114081, 1005	124405, 896	133207, 2625
114098, 2422	124514, 921	133394, 2896
114245, 1005	124850, 2651	133513, 664
114467, 664	124854, 3013	133593, 1006 <i>B</i>
114759, 2622	124876, 920	133628, 1006 <i>B</i>
114822, 1401	124987, 900	133989, 3069, 3075
115139, 3075	125107, 660	134462, 99
115489, 1006	125163, 1880	134704, 3073
115727, 2637	125268, 660	134798, 1005
115772, 3017	125633, 2392	135019, 1309
115776, 3042	125696, 3056, 3075	135560, 2400
115958, 1006 <i>B</i>	126123, 2399	135613, 2995
115959, 1006 <i>B</i> *	126803, 664	135776, 2995
116402, 1006 <i>B</i>	126774, 2650	136033, 664
117181, 1006 <i>B</i>	127358, 2654	136105, 1402
117250, 1004	127910, 664	139955, 1129
117562, 1401	127915, 3013	141268, 2397
117574, 1006	127941, 1401	
117575, 1006	128003, 2421	
117768, 2530	128266, 1094	
117773, 1400	128341, 1400	
118264, 1006	128358, 2655	
118530, 1004	128668, 3081	
118858, 2629, 2640	128746, 3069	
118863, 1402	128759, 2645	
118665, 2648	128760, 2546	
118979, 1006	128993, 1005	
119046, 664	128994, 1005	
119060, 1004	128995, 1005	
119100, 1006 <i>B</i>	129256, 3075	
119105, 1006 <i>A</i>	129266, 2653	
119317, 664	129268, 1006	
119494, 1004	129620, 2632	
119505, 2762	129687, 3069	
119511, 1402	129723, 2632	
119741, 1605	129734, 92, 2640	
119753, 1402	130361, 2469	
119754, 1402	130372, 1604	
119769, 1005	130488, 1005	
119847, 2956	130489, 1005	
119988, 1006 <i>A</i>	130925, 2421	
120481, 3067, 3072	130969, 2653	
120751, 3007, 3013 *	131094, 1005	
120890, 1006 <i>B</i>	131291, 3068	

## JAPANESE

### Application

Dec. 10th, 1909, 1152,

### Patents

16247, 2768
18600, 2768
28307, 2669, 2754
29247, 2754, 2669
29818, 3081
29893, 2394
29986, 958
30009, 2841
30107, 2512
30228, 802
30252, 2513
30336, 2512
30572, 2589
30605, 2533
30606, 2512
30650, 3002
31355, 2425
31374, 102
31446, 2583

• **JAPANESE**

31506, 2589  
 31625, 103  
 31711, 2516  
 31972, 1119  
 31991, 3078  
 32030, 3023  
 32100, 1033  
 32242, 2582  
 32245, 2410  
 32286, 930, 935  
 32293, 2551  
 32418, 2604  
 32722, 850  
 34855, 2394  
 34872, 1004  
 34896, 1004  
 34946, 2551  
 35020, 3081  
 35042, 2682

**LUXEMBURG**

846, 2575  
 3302, 3024  
 3361, 3024  
 5235, 3064  
 5236, 3064  
 5300, 3070  
 7610, 3024

**MEXICAN**

8179, 2768

**NATAL**

Dec. 18, 1889, 77  
 23, 1161  
 156, 1161  
 157, 1161

**NEW SOUTH WALES**

1859, 1889, 77

**NEW ZEALAND**

4005, 77  
 \*10838, 2973  
 23859, \*928  
 30375, 2768  
 32242, 848, 833  
 32619, 2708  
 33472, 850  
 33642, 849  
 33654, 2608  
 33718, 1072  
 34032, 844, 988  
 34729, 921

34730, 921  
 34746, 2578  
 34752, 2959  
 41421, 847  
 42156, 849  
 42164, 899

**NORWEGIAN**

May 10, 1889, 2094  
 May 8, 1917, 675  
 Sept 13, 1918, 899  
 2729, 719  
 3201, 1724, 2944  
 7610, 3024  
 8958, 3082  
 10167, 684  
 10823, 2578  
 10906, 2532  
 11372, 1152  
 11445, 870  
 12416, 884  
 12684, 684  
 12689, 684, 870  
 12721, 884  
 13035, 870  
 13040, 870  
 13052, 870  
 13240, 870  
 13243, 3070  
 13241, 870  
 13279, 870  
 13280, 870  
 13281, 870  
 13705, 870  
 13738, 870  
 13753, 870  
 13856, 2995  
 13925, 684, 992  
 13975, 1152  
 14058, 1402  
 14102, 684  
 14209, 684  
 14229, 870  
 14350, 870  
 14406, 1832  
 14585, 870  
 14830, 684  
 14885, 684  
 14975, 684  
 15021, 684  
 15052, 870  
 15082, 3013  
 15185, 3068  
 15349, 870  
 15369, 684  
 15642, 2997  
 15706, 870  
 15896, 870

15898, \*870  
 15970, 884  
 16035, 884  
 16042, 684  
 16045, 684  
 16083, 684, 701  
 16203, 684  
 16291, 3013  
 16292, 3013  
 16294, 870  
 16368, 884  
 16512, 684  
 17051, 870  
 17170, 884  
 17193, 684  
 17195, 3023  
 17257, 684  
 17286, 884  
 17287, 870  
 17400, 870  
 17402, 884  
 17429, 870  
 17499, 870  
 17557, 870  
 17558, 870  
 17559, 870  
 17644, 684  
 17834, 870  
 17974, 870  
 17975, 870  
 18030, 684  
 18031, 684  
 18062, 870  
 18236, 870  
 18237, 884  
 18243, 870  
 18370, 870  
 18687, 213, 315  
 18854, 870  
 19003, 1086  
 19124, 684  
 19261, 870  
 19262, 684  
 19343, 684  
 19345, 884  
 19399, 684  
 19610, 2768  
 19635, 870  
 20029, 1152  
 20045, 684  
 20113, 884  
 20273, 1072, 1082  
 20328, 693  
 20360, 884  
 20407, 684  
 20408, 884  
 20411, 2768  
 20450, 1063  
 20486, 870

20487, 684  
20645, 27  
20670, 870  
20693, 884  
20700, 2563  
20797, 684  
20847, 4  
20907, 892  
21153, 884  
21334, 870  
21362, 884  
21760, 884  
21848, 310  
21879, 1975  
21930, 684  
21990, 1005  
22033, 2966  
22041, 2420  
22163, 684  
22183, 684  
22263, 2122  
22298, 684  
22369, 884  
22498, 684  
22583, 684  
22631, 870, 879  
22740, 684  
22807, 1088  
22893, 684  
22894, 684, 843, 870  
955  
22895, 1111, 1120  
22900, 540  
23041, 684  
23058, 1517  
23063, 1006B  
23064, 1006B  
23068, 1306  
23152, 684  
23153, 1402  
23162, 684  
23163, 884  
23164, 884  
23290, 1006A  
23335, 884  
23420, 684  
23446, 870  
23472, 1006B  
23510, 664  
23511, 2420  
23534, 664  
23542, 870  
23575, 684  
23612, 664  
23673, 310  
23679, 2415, 2422  
23689, 304  
24038, 1292  
24140, 314

24238, 884  
24349, 312  
24385, 870  
24423, 870  
24561, 310  
24562, 310  
24757, 304  
25315, 307  
25927, 304  
26028, 312  
26029, 309  
26138, 310  
26203, 305  
26296, 312  
26329, 870  
26445, 315  
26479, 884  
26603, 312  
26690, 918  
26691, 918  
26693, 2996  
26694, 2996  
26822, 1151  
26835, 2964  
26837, 2408  
26858, 2959  
26865, 870  
26882, 870, 879  
26996, 2068  
27064, 995  
27188, 209  
27202, 278  
27291, 987  
27317, 699  
27386, 341  
27449, 1111, 1121  
27450, 987  
27507, 37  
27550, 892  
27613, 304  
27637, 308, 314  
27733, 2998  
27849, 305  
27881, 305  
28147, 310  
28210, 701, 930  
28537, 2995  
28771, 268  
28962, 847  
29011, 2997  
29192, 1006A  
29193, 1006A  
29231, 2426  
29279, 935  
29327, 1076  
29660, 664  
29687, 1006B  
29748, 660  
29763, 660

34743, 661  
30784, 2408  
30789, 1400  
30858, 1006B  
34440, 1073

PORTUGUESE

June 11, 1879, 1629,  
1804, 2973  
1539, 77  
2325, 3063  
2899, 3024  
2930, 3006, 3018, 3019  
4475, 3070  
6153, 2768  
6454, 2768  
7102, 3042  
7164, 5  
8049, 1005  
8201, 2777  
8348, 3012  
8466, 843  
8467, 843  
8468, 843  
8540, 843  
8546, 2632  
8572, 2775  
8761, 1006B  
8859, 1401  
8884, 1005

QUEENSLAND

910, 1889, 77

ROUMANIAN

141, 1152  
813, 1152

RUSSIAN

Applications

Oct 20, 1909, 1152  
Feb. 17, 1910, 1152  
April 24, 1896, 3063  
March 19, 1901, 3070  
953, 308  
1198, 419  
1388, 2525  
1582, 1152  
2006, 3063  
2664, 65  
3264, 3006, 3018, 3019  
3378, 3024  
5464, 1030  
5477, 1030  
5675, 2532



**Russian**

5842, 1151  
 5897, 1151  
 5945, 1151  
 6091, 1152  
 6092, 1152  
 7816, 3071  
 8372, 1161  
 8373, 1161  
 8440, 1161  
 8504, 1151  
 8845, 1152  
 8893, 2540  
 10460, 2528  
 10880, 1152  
 11492, 3007, 3028  
 14862, 2532, 2660  
 15773, 3064  
 16152, 3064  
 22940, 3075  
 26112, 3075  
 54465, 1400  
 54691, 1006A  
 54746, 664  
 54915, 664  
 54958, 2653, 3075  
 55084, 2639  
 55085, 1006  
 55215, 2634  
 55373, 2765  
 56319, 1402  
 56397, 664  
 56401, 664  
 56419, 1005  
 56477, 2639  
 56571, 2777  
 56963, 2500

**SOUTH AFRICAN  
REPUBLIC**

141, 1889, 77

**SOUTH AUSTRALIAN**

1418, 1889, 2949  
 1486, 1889, 77

**SPANISH**

Dec. 7, 1877, 2719  
 Jan. 20, 1886, 2622  
 Nov. 13, 1886, 2659,  
 2691

7849, 2622  
 8178, 1875  
 8991, 2251  
 9204, 2623, 2626  
 10241, 77  
 13906, 2700

25637, 1161  
 26728, 1161  
 31479, 3064  
 32875, 3070  
 33511, 3068  
 43476, 2768  
 43477, 2768  
 46082, 2944  
 46267, 1224  
 46459, 1224  
 46563, 1152  
 47327, 5  
 47917, 1787, 1789  
 48887, 3075  
 48911, 3075  
 49719, 3075  
 51237, 1005  
 51459, 1006B  
 51810, 3073  
 51813, 3073  
 52308, 2421  
 52725, 1006B  
 52766, 1006B  
 52930, 1006A  
 53970, 853  
 54237, 2653, 3075  
 54469, 2466  
 54856, 1005  
 55104, 3050  
 55263, 2608  
 55405, 1006B  
 55488, 2421  
 55552, 1006B  
 55990, 1399  
 56076, 2995  
 56111, 664  
 56117, 2995  
 56260, 1005  
 56409, 1005  
 56691, 1005  
 56706, 1006  
 61367, 900

**STRAITS SETTLE-  
MENTS**

May 2, 1890, 77

**SWEDISH**

Aug. 20, 1880, 1629,  
 1804,  
 2974  
 May 8, 1899, 2094  
 349, 1020  
 2830, 1390  
 8049, 2031, 2093, 2111  
 8422, 308  
 9773, 2111

9775, 2112  
 10976, 3042  
 11657, 3082  
 11964,  
 15967, 1152  
 16099, 884  
 19295, 3070  
 19742, 1152  
 19987, 870  
 20095, 870  
 20249, 3007, 3028  
 21089, 870  
 21234, 870  
 23258, 884  
 23464, 307  
 23915, 870  
 24086, 870  
 25070, 870  
 25283, 213, 315  
 26825, 213  
 28333, 884  
 28501, 2997  
 28551, 4198, 314  
 28646, 870  
 29437, 1152  
 29988, 1224  
 30408, 2967  
 30531, 2966  
 30825, 1224  
 30832, 870  
 31956, 314, 2422  
 31999, 1076  
 32202, 884  
 33084, 282  
 33333, 305  
 33546, 657, 3009  
 33840, 1020  
 33876, 306  
 34285, 2399  
 34466, 855  
 34505, 2961  
 34623, 306, 2420  
 34624, 202, 213, 306  
 2420  
 34895, 995  
 34941, 314, 2640  
 35011, 2961  
 35040, 1400  
 35177, 1091, 1310  
 35232, 304  
 35500, 310  
 35706, 306  
 36205, 917  
 36230, 2992  
 36645, 916  
 38723, 870  
 38745, 817  
 38962, 884  
 40296, 2959

## 3211

35434, 82  
35435, 83  
35436, 2636  
35454, 2837, 2921  
35462, 2654  
35911, 102, 2650  
35950, 870  
36058, 3022  
36170, 2017  
37037, 884  
37584, 2655  
37754, 2611  
37900, 882, 985  
38455, 2635, 3072  
38910, 2624, 2635  
38927, 924  
39050, 1372  
39061, 870  
39587, 2554, 2649  
39711, 2634, 3073  
39831, 2634  
39840, 415  
40060, 2882  
40164, 83  
40190, 2924  
40467, 2924  
40468, 2924  
40469, 2924  
40535, 2660  
40614, 83, 3072  
40639, 2660, 2769  
40674, 2634, 2650  
40882, 849, 696  
40972, 2631, 2655  
41004, 2944  
41005, 92, 2648, 2765  
41108, 2660  
41109, 90  
41238, 79, 2647, 2649  
41262, 915  
41274, 2924  
41275, 2610  
41369, 2924  
41370, 2924  
41554, 90, 2660  
41555, 2647  
41769, 1152  
41910, 2773  
42026, 2634  
42181, 2555  
42605, 87, 2631, 2653  
42306, 92, 2640, 3069  
42330, 1028  
42338, 2401  
42511, 884  
42515, 684  
42529, 1779  
42533, 2607  
42572, 3051

1958, 2622  
2123, 985, 2622  
3194, 27  
3667, 2622  
3740, 2622  
3862, 1956  
4061, 1956, 1973  
4412, 2622  
4449, 2633  
4693, 1383  
4984, 2622  
6030, 2700  
8518, 843  
10049, 2992  
10506, 2622  
10845, 2643  
11628, 2768  
11994, 2030

## Swiss

42733, 699	47267, 3081	51952, 3060
42736, 2924, 2955	47395, 88, 2630, 2643,	51960, 1785, 3045
42903, 2877	3074	51970, 3045
43016, 2636, 3069	47432, 700	52115, 3025, 3036, 3038,
43184, 916	47574, 1086	3045
43193, 2877	47681, 3067	52116, 2693
43330, 3042	47793, 2921	52182, 2596
43416, 2610	47929, 918	52268, 695
43470, 2709	47963, 2894	52273, 3010
43476, 2607	48097, 2924	52280, 2765
43477, 2698	48231, 2671	52437, 3025, 3033, 3034
43628, 719, 722	48281, 1779	52438, 3026, 3030
43629, 722, 999	48335, 2631	52714, 685
43630, 905	48342, 922	52712, 1287
43633, 2776	48356, 2924	52903, 3060
43779, 696	48469, 1460	53244, 884, 896
43909, 2592	48474, 2961	53245, 884, 986
44075, 79, 2630, 2636	48576, 77, 87	53255, 2924
44092, 699	48679, 83, 87, 2631	53440, 88, 2653
44093, 855	48703, 985, 990	53502, 1005
44094, 855	48706, 918	53583, 1006
44198, 2924	48883, 2645	53585, 3015, 3017, 3018
44222, 918	48922, 2924	53749, 2629, 3075
44223, 1229	48975, 3053	53772, 700
44228, 2683, 2754	49399, 88	53777, 2493, 2636, 3016,
44229, 2611	49600, 697	3017
44367, 918	49601, 697	53779, 884
44368, 700	49757, 1152	53888, 3010
44369, 702	50077, 2924	53936, 91, 2636, 3070
44372, 2924	50078, 2770	53952, 474, 2419
44507, 2628, 2630, 2640	50079, 3080	53961, 5, 2418
44683, 700	50220, 430	54146, 3051, 3075
44750, 848	50227, 2924	54253, 703, 704
44751, 848	50235, 2894	54320, 696
44774, 1086	50259, 870	54331, 2924
44833, 3044	50365, 703, 704	54430, 2924
44963, 2628, 2630, 2640	50366, 700	54495, 1006A
45288, 2633	50501, 2631, 2649	54497, 3011, 3013, 3016,
45289, 2633	50538, 849	3017
45290, 74, 77	50545, 2762	54509, 2924
45318, 814, 985	50705, 700	54511, 2659, 2768
45321, 73	50836, 2961	54645, 2633
45324, 2924	51110, 684	54646, 3073
45368, 814	51112, 855	54834, 3069
45485, 2620	51114, 923	55034, 884
45487, 2768	51115, 923	55035, 2946
45490, 1825	51246, 2631	55242, 2649
45529, 2659, 2768	51446, 696	55344, 3054
45638, 700	51644, 3019, 3035, 3036,	55410, 2687
45639, 1392	3045	55411, 3073
45764, 77, 87, 2631	51741, 923	55412, 2709
45785, 2768	51812, 722	55537, 695
45913, 2659, 2773	51814, 2924	55540, 1006
46183, 855	51815, 2768	55752, 3024
46193, 2879	51816, 2768	55930, 989
46329, 3059	51839, 3026, 3031, 3037,	55931, 2994
46446, 3082	3042	55940, 2924
46851, 2864	51899, 849, 905	55942, 3042
47266, 2646, 3082	51910, 3010, 3035, 3036	56107, 3075

56144, 1006 •	60119, 919	64688, 2625
56145, 1006	60510, 3014, 3075	64710, 2545
56146, 3017, 3018	60537, 2996	64712, 1839
56152, 3057	60741, 3080	64900, 3069, 3075
56153, 2659, 2703	60787, 2762	64932, 2542
56245, 884	60988, 2614	64940, 3076
56329, 2645, 2647	60990, 2026	64941, 2765
56360, 884, 986, 1006.1	61380, 2633	65051, 3026
56470, 2768	61381, 3080	65057, 3060
56585, 2604	61410, 208	65129, 695
56595, 995	61423, 2770	65138, 2544
56840, 684	61424, 3013, 3020	65139, 2544
57050, 995	61428, 664	65350, 919
57058, 2924	61611, 2548	65549, 2541
57059, 2607, 2754	61629, 2392	65916, 884
57256, 3074	61710, 3013, 3020	65917, 961
57306, 2961	61918, 2469	65925, 2544
57506, 3069, 3072	61926, 1858	65926, 2924
57531, 884, 891, 896, 1005	61929, 2894, 3034, 3059	65927, 2769
57532, 700	62103, 513	66046, 3014
57534, 722	62140, 2924	66047, 3014, 3019
57535, 695 • 709	62303, 2696	66121, 919
57539, 896	62313, 2632	66488, 3060
57540, 929	62314, 3080	66512, 37, 3013, 3077
57738, 2648, 2650	62315, 2655, 3070	66513, 2777
57767, 851	62345, 1006	66640, 919
57773, 2961 •	62354, 2696	67106, 919
57774, 2924	62359, 2997, 3014	67107, 919
57935, 1020, 1031	62585, 2548	67113, 3013
57951, 76, 92, 504 •	62587, 2776	67251, 817
57952, 3010	62589, 2924	67430, 989
57981, 918	62590, 2924	67435, 3001
58189, 2634	62592, 2770	67705, 684
58408, 921	62720, 2996	68190, 1122
58422, 921	62810, 2068	68830, 961
58666, 919	62845, 684	68919, 684
58685, 2924	62849, 1006 <i>B</i>	68921, 3020
58686, 1789, 2676, 2684	63124, 1006 <i>B</i>	68996, 3012
58688, 660	63133, 2924	69002, 2748
58729, 3075	63134, 2924	69177, 995
58730, 3075	63136, 2390, 2542	69178, 1020
58882, 72, 2636	63137, 2390, 2542, 2675	69208, 2687
58883, 3077	63334, 2963	69514, 2710
58918, 917	63366, 2007	69951, 896, 904
58919, 1006	63563, 208	69958, 3024
59118, 2631	63584, 3043, 3045	70124, 3064
59140, 1004	63585, 2392, 3026, 3033, 3043, 3060	70152, 2996
59147, 684	63586, 3008, 3013	70283, 919
59148, 919	63587, 3081	70624, 1392
59164, 2545, 2548 •	63821, 2770, 3081	70901, 919 •
59167, 2924	64048, 88, 2694	71189, 995
59177, 2633	64190, 2075	71281, 919
59307, 1006	64191, 3073	71590, 919
59380, 3077	64234, 1387	71591, 321
59410, 696, 2537	64235, 684	71695, 3002, 3013
59412, 2523, 3012	64239, 2618	71804, 919
59641, 2634, 2648 •	64241, 2778	71809, 2766
60037, 919	64320, 2598	71991, 3012
		72083, 1080

3214

• Swiss

72378, 3003  
72627, 1129, 1301  
72631, 2768  
72634, 2670, 2760  
72635, 2760  
72890, 896, 904, 918  
72824, 870, 989  
72863, 2583  
73105, 2602  
73106, 2604  
73107, 307  
73286, 2608  
73287, 2608  
73377, 937  
73378, 939  
73573, 989  
73574, 847  
74128, 701  
74129, 2424  
74225, 919  
74339, 2755, 2766  
74443, 1357, 1370  
74444, 1113  
74445, 2501  
74446, 2501, 2905  
74525, 1291  
74526, 989  
74745, 989  
74943, 2425  
75048, 3001  
75657, 2609, 2620  
75980, 2602  
76279, 2755  
76329, 96, 286  
76546, 2676  
76866, 3001  
77143, 335, 2764  
77238, 2609  
77251, 2602  
77322, 286  
77376, 932  
77471, 2424  
77516, 612  
77663, 3013  
77932, 926, 928  
78106, 3002  
78107, 3002  
78108, 3012  
78272, 705  
78274, 2996  
78275, 2994  
78791, 893  
78947, 2995  
79339, 2995  
85389, 1006

TASMANIAN

Dec. 23, 1889, 77

INDEX OF PATENTS

TURKISH

158/1889, 77

UNITED STATES

Serials

31707, 3012

Reissues

502, 1292  
603, 1292  
1123, 454  
1365, 2731  
1449, 298  
1828, 2706  
1867, 2706  
1927, 2706  
2306, 2706  
2307, 2706  
2656, 2707  
3014, 2707  
3777, 2663, 2739  
3778, 2663, 2739  
3962, 2585  
5109, 2706  
5259, 2707  
5618, 2904  
5628, 2664, 2677  
5940, 2718  
7771, 2702  
7952, 2600  
7983, 2731  
8134, 2731  
8890, 2702  
9322, 2702  
9331, 2702  
9442, 2702  
9384, 2860  
9528, 2039  
9885, 226  
10442, 2679  
10469, 2039, 2664, 2677  
10546, 2664, 2677  
10650, 1517, 2039  
10722, 456  
10871, 2385  
11074, 2685  
11467, 2670  
11651, 1635, 2063  
11917, 2659, 2731, 2732,  
2733, 2734, 2738  
11976, 2715  
11995, 1196  
11997, 2659, 3018, 3019,  
3022, 3035, 3058  
12069, 203, 657  
12108, 203

12637, 2368, 2991, 3007,  
3029  
12759, 1151  
12921, 1064, 1076  
13001, 2526, 2531  
13067, 2731, 2733, 2734,  
2736

13090, 1090  
13316, 926  
13504, 1362  
13530, 2768  
13531, 2735, 2768  
13592, 480  
13793, 1788  
13829, 2485  
14087, 2771  
14277, 1086  
14338, 3013  
14458, 2712  
14530, 2768  
14531, 2768  
14562, 2564

Applications

Nov. 3, 1917, 747  
14318, 302  
Ap. Serial No.:  
71201, 2536  
123640, 2536  
214525, 2536  
221089, 2536  
241686, 2536  
244186, 2623  
246852, 2580  
378821, 2538  
529603, 2551  
637857, 3008  
637858, 3008

Patents

Dated Mar. 7, 1803, 450  
Sept. 16, 1810, 453  
Oct. 6, 1806, 1033  
Nov. 16, 1812, 1033  
563, 447  
1303, 1239  
2000, 447  
2775, 2377  
4874, 1579, 2377  
5019, 2708  
6854, 292  
7850, 447  
8902, 2702  
9249, 1206  
11050, 1295  
11213, 2377, 2813, 2885  
11247, 2511  
11266, 2798, 2807

- 11376, 2377, 2706  
 12361, 202  
 12846, 425  
 12936, 2412  
 12987, 2412  
 13340, 447  
 • 14300, 2377, 2849, 2867  
 15222, 1359, 1391  
 15336, 2377, 2813  
 15341, 2377, 2861  
 16202, 292  
 17651, 2377, 2020  
 17710, 447  
 17931, 2718  
 17949, 2377  
 17976, 1292  
 18338, 2377, 2585  
 18838, 2573  
 20755, 1064, 1070  
 22460, 447  
 22789, 425  
 23141, 1033  
 23771, 2377, 2706, 2707  
 24575, 2377  
 26084, 447  
 26588, 1011  
 27130, 447 •  
 27572, 2377, 2919  
 28278, 447, 1088  
 30842, 2708  
 31401, 2377, 2663 •  
 31657, 2377, 2662, 2695  
 31862, 291  
 33018, 2377  
 34061, 1887  
 35052, 2377, 2663, 2697  
 23687, 2573  
 36344, 2702  
 36557, 2702  
 38122, 2377  
 38144, 2377, 2860  
 38784, 2600  
 38785, 2600  
 38847, 2861  
 38904, 2981  
 39981, 329  
 40426, 2708  
 40576, 329  
 40577, 329  
 40592, 2903 •  
 40593, 2603 •  
 40659, 269  
 40693, 447  
 40696, 330  
 40728, 330  
 41647, 1360, 1391  
 41685, 2412 °  
 42231, 2600  
 42295, 2377, 2564  
 42358, 425  
 42942, 2718  
 42985, 1222, 1209  
 43166, 1596  
 43716, 2377  
 44105, 447  
 44781, 2708  
 44910, 2600  
 45001, 2412  
 45002, 2412  
 45566, 2708  
 46172, 2708  
 46567, 2708  
 47316, 1874  
 47677, 2377, 2044, 2082  
 48187, 257  
 48231, 2374  
 48239, 2377, 2662, 2706  
 2886  
 49039, 2708  
 49488, 2851  
 49703, 2708  
 • 49747, 2708  
 50082, 2021, 2377  
 50083, 2021, 2377  
 50359, 2377, 2663, 2723  
 50884, 2412  
 51109, 2718  
 52090, 1064  
 52503, 2377, 2907  
 52659, 2377, 2706  
 52724, 2709  
 52784, 2708  
 52812, 2708  
 52907, 2708 •  
 53455, 2708  
 53549, 2600  
 53742, 1046  
 53815, 2850  
 54986, 2702  
 55451, 2708  
 56356, 447  
 58131, 2708  
 58223, 2377, 2706  
 58561, 2708  
 58622, 2702  
 58673, 2708  
 59149, 2412  
 59328, 1023  
 59888, 1605, 2095, 2162  
 2377  
 59894, 2413  
 60567, 2979  
 60571, 2032, 2377  
 60573, 2377  
 60759, 1392  
 61368, 2377, 2921  
 62120, 2603  
 62503, 2600 •  
 62550, 2708  
 62919, 1391  
 63754, 447  
 64417, 2702  
 65108, 2412  
 65227, 1391  
 65267, 2377, 2662  
 65425, 2718  
 65664, 447  
 65914, 1076  
 66121, 447  
 67514, 447  
 67515, 447  
 67516, 447  
 68294, 447  
 69742, 2603  
 70485, 277, 315  
 71189, 2574  
 73259, 447  
 73322, 98  
 73427, 2603  
 73991, 2603  
 75067, 2718  
 75685, 2702  
 75690, 2600  
 76221, 2377, 2663, 2739  
 76685, 2702  
 76765, 2377, 2663, 2723  
 77202, 1392  
 77304, 2377, 2663, 2739  
 77826, 1391  
 77938, 2718  
 77993, 2600  
 78264, 2993  
 78352, 1391  
 78790, 1392  
 78842, 2718  
 79261, 1854, 2377, 2663  
 80048, 2603  
 80646, 2413  
 80860, 2412  
 81888, 447  
 82364, 2702  
 83893, 2377  
 85103, 705  
 86103, 70  
 86200, 1292  
 86201, 1033  
 86639, 2615 •  
 86710, 2377  
 86841, 2377, 2616, 2663  
 86881, 1064, 1244  
 87193, 2998  
 87277, 2600  
 87365, 2993  
 • 87607, 447  
 88228, 2377, 2663, 2685  
 2740  
 88254, 2377

# INDEX OF PATENTS

ed States		
40, 2377,2740	102798, 2377, 2574	133736, 2378
43, 2377,2663,2719	103209, 2377,2611,2687	133737, 2378
44, 2377,2663,2723	104241, 2574	133969, 1875,2377,2667
47, 2377	104269, 2604	2706
48, 2611	104861, 2702	134389, 1064
45, 2600	105338, 2039,2377,2383	135512, 1046
40, 2718	2664,2665,2677	135904, 447
43, 2377,2663,2740	105823, 2377,2574,2663	136147, 2473
44, 2377,2383,2659	2686	136247, 2708
2663	108060, 813	136439, 2377,2826
10, 447	108725, 2377,2706	136623, 2377,2512
31, 2718	109833, 2904	136735, 2377,2706
32, 2718	111100, 2600	136953, 2377,2574
32, 2377,2662,2663	112370, 2377,2611	137110, 2377
2719	112540, 2878	137451, 99,2611
37, 1109	112541, 2878	137452, 2611
35, 2377,2663,2739	113055, 2377,2738	137692, 1033,1064
36, 2377,2663,2676	113272, 2377,2706,2724	137891, 2730
33, 2377,2663	113735, 2378,2677,2706	137911, 447
34, 2663	113736, 2378,2739,2706	137912, 447
35, 2377,2663	114042, 1239	138254, 2377,2664,2723
41, 2377,2664,2665	114242, 2377,2739,2740	139017, 2611
77, 2377,2662,2665	114470, 2706	139334, 2377,2586
2666	114945, 2377,2723	139589, 2377
78, 2377,2662,2666	116597, 447	139738, 2377,2946
2701	117542, 2377	140034, 1109
93, 2377,2574,2611	117670, 1073	140148, 447
20, 315	118787, 2403	140542, 315
20, 277	118788, 2993	140862, 315
69, 2611	119224, 293	141116, 2600
52, 2377, 2723	119710, 2681	141117, 2600
92704, 2611	120130, 2739	141118, 2600
93086, 2377,2738	121522, 2377,2739	141351, 2377,2849,2920
93102, 2600	121586, 2998	141442, 447
93504, 2377	121802, 2739	141654, 2032,2377
93757, 2032,2377,2980	122962, 2377	143202, 1064,1244,1295
93817, 2993	123713, 1064, 1088	143205, 2708
93924, 2701	124510, 2377,2963	143772, 2377,2663,2079
94454, 2377	125635, 2377,2986	143865, 2066,2377
94736, 2721	125979, 2377,2739	144267, 2708
94969, 984	126575, 2377,2739	144794, 2377
95307, 1064	126698, 2377,2574,3060	144819, 315
96132, 2377,2574,2663	126760, 2707	144928, 1280
2676	126780, 2377	145213, 447
96148, 2611	127008, 1064, 1070	145403, 1816,1880,2377
96721, 2998	127656, 2377,2739	146481, 2718
97004, 2721	127807, 2377,2512	146692, 2702
97454, 2377,2383,2662	127957, 1391	146728, 1391
2663,2666	127974, 2708	147588, 2377,2706
98272, 2720	128218, 2721	148031, 2992
99032, 2666	128416, 2377,2383,2693	149004, 2585
99068, 2377	128450, 1809,2377	149216, 2377,2611
99069, 2975	129217, 2377,2764	149615, 2718
100553, 2998	130432, 1291	150095, 1292
101011 1064,1088	130668, 2600	150722, 2377,2592,2706
101175, 2377,2383,2662	131563, 2611	2720
2666	132993, 2585	151085, 447
101794, 2708	133229, 2377,2664,2672	151918, 2377
102198, 2585	2686,2688,2718	152147, 2377,2849

- 152232, 2377, 2604, 2677  
 152752, 2377  
 153196, 2377, 2738  
 153473, 2600  
 153939, 2377, 2718  
 153352, 2377, 2662, 2719  
 150353, 2377, 2662, 2264  
 2719  
 150354, 2377, 2718, 2719  
 150355, 2377, 2713  
 150358, 2377  
 156886, 74, 2611  
 157890, 2708  
 158104, 447  
 158188, 2377, 2574, 2611  
 158924, 1390  
 160010, 2377, 2592  
 161148, 2591  
 161403, 2708  
 161675, 315  
 162322, 2600  
 162752, 2677, 2678  
 163041, 2535  
 163221, 2377  
 163809, 391  
 163939, 2377  
 164260, 1423, 1428  
 164478, 2512  
 165234, 2377, 2697  
 165303, 2377, 2739  
 165420, 2600  
 165507, 1391  
 166270, 1023  
 166297, 2708  
 166411, 2708  
 166922, 2377, 2850  
 167485, 2861  
 168485, 2600  
 168497, 2377  
 169053, 2377, 2763  
 169054, 447  
 170244, 2708  
 170360, 2377, 2574  
 170546, 2377  
 171049, 1391  
 171919, 2708  
 172009, 425  
 172482, 2377, 2726  
 172486, 2377, 2706  
 172895, 2025, 2377, 2706  
 173647, 2377, 2739  
 173865, 2377, 2739  
 173999, 2377, 2706  
 174000, 2377, 2707  
 174001, 2377, 2707  
 174002, 2377, 2707  
 174292, 2693  
 174525, 2377, 2849  
 174587, 447  
 175734, 1313  
 175735, 2377, 2039  
 176019, 2600  
 176813, 948, 1443  
 177452, 2702  
 177988, 1804, 1854  
 178479, 2377, 2688  
 179667, 2739  
 179688, 2023, 2377  
 178689, 2702  
 180133, 2377, 2672, 2677  
 180666, 2377  
 180901, 1064, 1088  
 181751, 447  
 182246, 1308  
 182362, 1033  
 182431, 2377, 2720  
 183185, 1064  
 183550, 2377  
 183819, 2604  
 184043, 2701  
 184481, 2377, 2659  
 184510, 2377  
 184762, 2973  
 185141, 2694  
 185640, 1088  
 185673, 2910  
 185716, 2702  
 185964, 1064, 1088  
 187413, 1064  
 187593, 2327, 2697  
 187611, 2601  
 188105, 2708  
 188801, 1064, 1088  
 189867, 2702  
 190363, 2377, 2707, 2730  
 190865, 2377, 2593  
 191778, 1064, 1092  
 193322, 101  
 193323, 101  
 195010, 2713  
 195718, 452  
 196894, 104, 2377  
 196895, 104  
 196957, 1391  
 197474, 1064, 1088  
 198338, 2702  
 198382, 98  
 198868, 2702  
 198985, 2377  
 199285, 2702  
 199749, 2697  
 199908, 2377, 2682  
 199909, 2715, 2716  
 200914, 2377, 2672, 2677  
 200939, 2377, 2706  
 201348, 2377, 2719  
 201575, 2702  
 201910, 2377  
 202132, 292  
 202441, 2377, 2686  
 202443, 1080  
 202832, 447  
 203834, 2377, 2709  
 204206, 1033  
 204227, 2377, 2604  
 204228, 2377, 2688  
 204229, 2377, 2604, 2680  
 204244, 1306  
 204262, 2702  
 205271, 2377, 2682  
 205836, 2377  
 205880, 2377, 2682, 2687  
 206296, 2702  
 206309, 1306  
 207086, 681  
 208191, 2708  
 208584, 2378, 2617, 2868  
 208570, 2377, 2592  
 208625, 2586  
 208865, 2702  
 208872, 2702  
 208978, 2993  
 208979, 2993  
 210079, 2600  
 210411, 2377, 2600  
 210489, 2702  
 210611, 534, 2639, 2377  
 210612, 2076, 2377  
 210655, 2600  
 210780, 2377, 2730  
 211282, 2702  
 211574, 2702  
 212265, 2708  
 212948, 2702  
 212984, 2702  
 214065, 2685  
 214910, 447  
 215038, 2702  
 215743, 2708  
 216474, 2037, 2377  
 217111, 2377, 2678, 2731  
 217232, 2377, 2593, 2672  
 2673, 2675, 2679  
 217474, 2377  
 217683, 2702  
 218122, 2377, 2701, 2729  
 218220, 2702  
 218480, 2702  
 219218, 2377, 2688, 2695  
 219235, 2377, 2673  
 219279, 2377, 2690  
 219382, 2739  
 219484, 2709  
 219668, 331  
 220237, 2600  
 220386, 2377  
 220435, 2377, 2616, 2854



## United States

2869	234025, 1064	241941, 1631
220502, 2377, 2741	234119, 447	242208, 2378, 2563
220774, 2702	234129, 1030	242337, 2575
221070, 2377, 2680, 2682	234450, 2681	242342, 2601
221580, 2600	234665, 2378, 2707	242783, 1631
221977, 2377, 2706	234675, 2378, 2593	242893, 1853, 2378
222229, 2696	234680, 447	243024, 449
222233, 2702	234823, 2378	243269, 456
222527, 450	234828, 2687	243270, 456
222678, 2738	235001, 452	243782, 2378
223311, 2377, 2715	235053, 447	244872, 2601
223571, 1130	235281, 2843	244916, 2756
223736, 2377	235344, 2378, 2715	245340, 447
223747, 2512	235799, 2705	245663, 447
224682, 2377, 2688, 2712	235831, 2378, 2838, 2869	245952, 1631, 1789, 1790
224745, 2377, 2702	235932, 2378	2378, 2675, 2668
224841, 2378, 2564	235933, 2730	246270, 2378, 2714
225149, 447	235953, 2378, 2740	246396, 1391
225458, 2378, 2860, 2904	235954, 2378, 2690, 2697	246588, 2702
225730, 681	235958, 2378, 2741	246589, 2702
225802, 2378, 2592	235959, 2378, 2741	246671, 450
226032, 681	236034, 2378, 2718, 2719	246678, 2378, 2677
227027, 681	236615, 2378, 2792	246891, 1631, 2378, 2384
227168, 2378	236995, 2378	2672
227352, 2378	237168, 2378, 2677, 2688	247365, 2601
227537, 453	237246, 2917	247477, 2378, 2685
227583, 447	237247, 2378, 2749, 2917	247734, 2378
227601, 1628	2918	247793, 2512
228005, 2378	237248, 2017	248413, 1631, 2378, 2692
228463, 2378	237279, 1789, 2378	2695, 2720
229477, 2672	237366, 391	248306, 2702
229694, 2378, 2851, 2854	237440, 660	248521, 1071
229817, 2601	237559, 2378, 2730	248734, 450
229937, 2512	237662, 2378	248973, 447
229949, 2702	237779, 2378	249048, 2378, 2705
230216, 2022, 2378	238382, 2738	249056, 456
230344, 447	238916, 1854	249600, 2148, 2149, 2378
230501, 1202	238372, 2601	2672
230878, 2378	238927, 2378, 2710	250143, 450
231528, 447	238928, 2701	250335, 447
231583, 2378	239171, 456	250362, 448
231692, 2601	239398, 537	250416, 1232
231804, 448	239423, 1631, 1786, 2378	251145, 1870, 2378
232037, 2378, 2686	2670	251212, 2378, 2731
232095, 2378, 2718	239424, 1631, 1786, 2378	251258, 2686
232449, 2378, 2715	2670	251259, 2378, 2686
232685, 1308	239425, 1631, 1786, 2378	251260, 2378, 2677, 2687
233076, 2378, 2681	2670	251410, 2078, 2615, 2687
233124, 447	239466, 2378	251473, 2378
233414, 2378, 2711	239791, 2378, 2677	251574, 450
233558, 2378, 2667, 2676	239792, 2378, 2745	251731, 2378, 2710
233604, 2378, 2687	239793, 2378, 2677	251924, 2378, 2681, 2717
233680, 1291	239794, 2378, 2718, 2719	2720
233692, 2702	240248, 1383, 1391	251938, 1413, 2378
233824, 2378, 2741	241004, 2378, 2729, 2745	252287, 1046, 1074
233851, 2378, 2681, 2745	241005, 2378, 2745	252600, 1849
233878, 2378, 2706	241056, 71	252856, 2378, 2717
233898, 2378, 2679	241554, 447	253001, 2378, 2707
233973, 2378, 2685, 2755	241666, 456	253337, 448

- 253656, 293  
 253840, 2378, 2578, 2615  
 2687  
 253864, 2378, 2682  
 253923, 447  
 254029, 447  
 254063, 447  
 254157, 448, 451  
 254158, 448, 451  
 254169, 2702  
 254239, 448, 451  
 254240, 448, 451  
 254280, 2378, 2711  
 254439, 2673  
 254751, 1517, 2378  
 254875, 2706  
 254964, 2766  
 255171, 2850  
 255355, 2378, 2694, 2712  
 255655, 2689  
 255993, 2702  
 256198, 2378, 2709, 2711  
 256221, 456  
 256315, 450  
 256476, 2378, 2694, 2720  
 256596, 2378  
 256597, 2378, 2616  
 256630, 450  
 256879, 2378, 2739  
 257033, 2378, 2716  
 257108, 447  
 257318, 450  
 257319, 450  
 257320, 450  
 257607, 2378  
 257958, 448  
 257959, 448  
 258021, 2512  
 258070, 456  
 258164, 2378  
 258170, 2378, 2717  
 258265, 448, 451  
 258459, 2378  
 258480, 2378, 2706  
 258858, 2378, 2739  
 259732, 447  
 259826, 2378, 2677  
 259950, 2378  
 259984, 2677  
 260065, 2907  
 260188, 453  
 260380, 454  
 260414, 1369  
 260559, 2684  
 261445, 451  
 262077, 2378, 2384  
 262584, 2601  
 263030, 425  
 263525, 456  
 263958, 447  
 264506, 2708  
 264688, 451  
 264986, 2378, 2594  
 264987, 1899, 2378, 2594  
 2646, 2673, 2676  
 264988, 2378, 2594  
 265229, 2378, 2672, 2677  
 265337, 2378, 2577, 2618  
 2661  
 265495, 1355, 1361, 1391  
 265613, 2378, 2696  
 265837, 2378, 2384  
 266382, 2378, 2696  
 266902, 2413  
 267045, 2378  
 267046, 2378  
 267108, 2251, 2378, 2914  
 267221, 1366, 1391  
 267836, 2413  
 268530, 1064, 1092  
 268793, 1064, 1081, 1086  
 1291  
 269309, 681  
 269340, 2378, 2492, 2500  
 2580  
 269341, 2378, 2384, 2500  
 269342, 2378, 2384, 2487  
 2500  
 269343, 2378, 2384, 2500  
 269344, 2378, 2384, 2477  
 2500  
 269345, 2378, 2403, 2500  
 269817, 2721  
 270210, 447  
 270260, 451  
 270304, 450  
 270342, 2689  
 270439, 456  
 270475, 2604  
 270538, 2378, 2616  
 270763, 1291, 1308  
 270894, 447  
 271035, 2378, 2705  
 271150, 2564  
 271216, 2378  
 271370, 2378, 2740  
 371476, 2378, 2739  
 271493, 2378, 2710  
 271494, 2378, 2684, 2686  
 271495, 2378, 2684, 2686  
 271496, 2378, 2684  
 271901, 2378, 2564  
 272032, 2378, 2681  
 272033, 2378, 2681  
 272824, 447  
 273128, 449  
 273572, 448  
 273800, 37  
 274328, 2378, 2731  
 274335, 1413, 1421, 2039  
 274453, 1075  
 274522, 2378  
 274734, 2667  
 275215, 2378  
 275941, 1391  
 275215, 2664, 2682  
 275216, 2677, 2682  
 275340, 448  
 275391, 452  
 275422, 2378  
 276245, 2378, 2739  
 276248, 2378, 2706  
 276435, 2378  
 276443, 2378, 2673  
 276806, 447  
 276833, 1629, 1872  
 276916, 2378  
 276948, 2378  
 277692, 2682  
 277693, 2378  
 277694, 2378, 2688  
 277939, 2378, 2740  
 277977, 2601  
 278321, 2378, 2678  
 278490, 447  
 278536, 2378  
 278667, 2378, 2688  
 279384, 2378, 2678  
 280044, 447  
 280425, 1391  
 280659, 2378, 2673, 2688  
 280745, 2378, 2677, 2686  
 280836, 2708  
 281332, 2688  
 281333, 2688  
 281529, 2378, 2686  
 282442, 2702  
 282451, 2378, 2677, 2695  
 282914, 2378  
 283044, 2378  
 283224, 2378, 2677, 2680  
 2682  
 283225, 2378, 2718  
 283424, 2575  
 283487, 2378, 2739  
 284098, 2378  
 284289, 2700  
 284319, 212, 277  
 284447, 452  
 284742, 1423  
 284817, 1064, 1088  
 284970, 2378, 2575, 2701  
 284983, 447  
 285057, 2679  
 285058, 2679  
 285059, 2679  
 285067, 456

285475, 2602	299388, 1421, 2039, 2378	312593, 453
285619, 2378, 2681	299389, 2378, 2716	312945, 98
285699, 2708	299390, 2378, 2716	313238, 2378, 2742
285901, 447	299514, 2691	313245, 2575
286212, 2378, 2593, 2673	299802, 2378, 2686	314548, 1343
286535, 2378, 2677, 2679	299803, 2378, 2679, 2683	314910, 2412
286541, 2378, 2714	299804, 2378, 2714	315357, 2251, 2378, 2501
286922, 2378	299857, 2378, 2780	315633, 2378
287723, 2679	300158, 2378, 2718	316404, 448
288955, 2378, 2706	300165, 449	316405, 448
289239, 2378, 2680	300700, 425	316406, 448
289240, 2378, 2609, 2680	300725, 2378, 2730	316847, 98
2707	301033, 1391	317390, 2378, 2764
289241, 2378, 2609, 2619	301222, 1014, 1022	318233, 2378, 2749
289242, 2378, 2609, 2680	301436, 425	318307, 448
2707	301641, 227	318308, 448
289293, 1383, 1391	301706, 2378, 2848	318682, 1391
289338, 2378, 2609	301936, 2378, 2740	319084, 2378, 2700
289917, 2378, 2701	301995, 2378, 2682	319108, 1064
290553, 2378, 2609, 2680	302549, 2678	319315, 447
2682	302630, 2378	319598, 456
290953, 2708	302823, 2378	320249, 391
291157, 2702	303081, 2679	320361, 456
291163, 681	303531, 1071	320400, 448
291533, 2378, 2729	303930, 451	320401, 448
291821, 1355, 1391	304020, 2378	320402, 448
292054, 1232	304361, 1634, 2030, 2963	320430, 425, 451
292078, 1232, 1278	304631, 2378	320431, 425
293408, 2378, 2681	304851, 450	320884, 2378, 2719
294204, 2378, 2715	304229, 2601	321548, 2676
294285, 2413	304337, 2679	322029, 104
294530, 447	304772, 2765	322729, 2378, 2706
294531, 447	304880, 2378, 2594	322802, 2378, 2600
294557, 2378, 2580	305205, 2718	322803, 2378, 2600
294661, 1634, 2378, 2667	306468, 2690	322804, 2378, 2600
2720	306470, 2888, 2898	322805, 2378, 2600
295653, 2605	306519, 1421, 1518, 2039	323425, 453
295688, 2861	2378	323583, 1133
295848, 268	306594, 2888, 2898	324082, 2702
296000, 451	307032, 2378, 2718	325262, 1291
296183, 2678	307179, 2378	325263, 1291
296263, 2601	307269, 2378	326081, 2702
296825, 2678	307366, 447	326119, 2378, 2664
296918, 2702	308289, 1064, 1292	326132, 2378
296919, 2702	308889, 2378, 2716	327035, 451
296935, 295	309831, 2378, 2718	327345, 451
296967, 2039, 2378, 2664	309968, 1064	327402, 2378
2672	310112, 2575	328666, 2378, 2564
296968, 2039, 2378	310147, 1131	328812, 274
296969, 2378, 2670	310187, 1033	328843, 2378, 2686
296970, 2378, 2670, 2672	310691, 2708	329093, 2378, 2613, 2680
297098, 2378, 2610	310957, 2378	2685
297319, 619	311203, 2378, 2611	329128, 2378, 2713
297626, 2378	311595, 1064, 1088	329214, 274
297770, 2378, 2609, 2680	311646, 470	329215, 274
297935, 2039, 2151, 2378	311751, 2702	329229, 456
2672	312341, 425	329273, 2378
298072, 2378	312342, 425	329313, 2378, 2385
298734, 1014, 1022	312592, 453	329701, 447

- 330185, 2378,2730  
 330838, 2378,2706  
 331241, 2378,2664  
 331242, 2378,2664  
 331713, 2378,2664,2672  
 332439, 447  
 333151, 1634  
 333469, 2713,2378,2686  
 333721, 2413  
 333872, 1634  
 333908, 453  
 334000, 448  
 334729, 2378  
 334734, 2378,2730  
 335256, 2378,2678  
 335528, 2678  
 335699, 1224  
 235935, 2378  
 336006, 2378,2707  
 336822, 1421,2039,2378  
 337197, 1064,1088  
 337448, 447, 479  
 337472, 2378,2700  
 337490, 447  
 338544, 2378,2565  
 338557, 1064,1088  
 338558, 1088  
 338563, 2708  
 339552, 1367,1391  
 339787, 2378  
 340024, 2378  
 340026, 2580,2615  
 340276, 1634  
 340705, 425  
 341282, 448  
 341158, 2378  
 341283, 448  
 341332, 2910  
 341616, 2792  
 341927, 2378  
 342208, 1635,2378,2659  
 342694, 2378  
 342785, 1301  
 343006, 2708  
 343523, 2085  
 343717, 2702  
 343850, 1421,2039,2378  
 343903, 2378,2707  
 344410, 448  
 344411, 448  
 344412, 448  
 344823, 2378  
 345083, 2378  
 345140, 1239  
 345417, 425  
 345418, 425  
 345926, 448  
 345927, 448  
 345982, 2378,2714  
 345983, 2378,2713  
 346003, 453  
 346320, 448  
 346376, 2378,2745  
 346602, 450  
 346722, 2378  
 346820, 451  
 347424, 1635,2378,2945  
 347466, 2702  
 347611, 456  
 347612, 456  
 347891, 2702  
 348183, 2690  
 348222, 2378,2745,2748  
 349241, 1239  
 349414, 1369,1391  
 349658, 617,2070,2378  
 349659, 1634,2148,2378  
 2672  
 349981, 1013  
 349987, 2378,2677,2682  
 350049, 2378,2671,2688  
 350497, 534,1116,2036  
 2378  
 350498, 534,1517,1631  
 2036,2378  
 350577, 2378  
 351402, 2702  
 352611, 1635,2378,2765  
 352726, 2378,2615  
 352852, 2378  
 353222, 1239  
 353642, 2378,2708  
 353697, 2378,2762  
 354393, 1013  
 354409, 447  
 354634, 451  
 354924, 2702  
 356064, 2378,2944,2977  
 356108, 2378,2667,2677  
 356614, 2702  
 357107, 1292  
 357528, 1355,1391  
 358615, 2413  
 358848, 2378,2898  
 358859, 2702  
 359032, 2378,2724  
 359289, 1809  
 359772, 2702  
 360811, 2378,2617,2745  
 361315, 2378,2742  
 361690, 2386  
 361788, 456  
 362076, 2378  
 362502, 450  
 363131, 2378,2580  
 363197, 1875,2378,2668  
 363235, 447  
 363457, 1058,1064,1092  
 363887, 1635  
 363898, 2378,2724  
 365474, 2702  
 365768, 2378,2677,2702  
 365832, 2645  
 366231, 2378,2541,2549  
 366281, 1820  
 366336, 2378  
 366337, 2378  
 366898, 2378  
 367266, 2702  
 367534, 2645  
 368027, 2378,2717  
 368223, 2378,2745,2898  
 368277, 2378,2729  
 368501, 2378,2688  
 368591, 2378,2686,2688  
 369530, 305  
 369634, 305  
 369784, 2378,2677  
 369790, 1391  
 369836, 270, 305  
 369973, 89  
 370111, 2918  
 370546, 2378,2659,2691  
 371021, 2378,2385,2496  
 371357, 2378  
 371376, 1635,2964  
 371668, 2708  
 372100, 2378,2385  
 373001, 2378,2730  
 374268, 1391  
 374346, 447  
 374585, 2378,2739  
 374654, 2702  
 375121, 1232  
 375737, 425  
 375952, 2378,2597  
 376000, 2378,2943  
 376883, 1064,1088  
 377944, 2378,2687  
 378299, 1232  
 378673, 1063  
 379034, 448  
 379289, 2378,2706  
 379546, 2745  
 380175, 2702  
 380654, 2378,2696  
 381208, 2702  
 381354, 2378,2580  
 383418, 2736  
 383272, 2378,2744  
 383987, 2378  
 383992, 2400  
 384005, 2378,2488,2491  
 2580  
 384190, 2378  
 384841, 1107  
 384868, 2413

3222

## United States

385092, 2702  
 385642, 2378, 2730  
 385777, 2378, 2400  
 385707, 2378, 2888  
 386000, 2378, 2888  
 386110, 2378, 2682  
 386363, 456  
 386634, 2702  
 386822, 2378  
 386875, 2980  
 386925, 2378  
 387947, 2378, 2682  
 388287, 2378, 2706  
 388406, 1232  
 389962, 2702  
 391015, 2414  
 392235, 1064  
 392389, 454  
 392794, 2378, 2667, 2706  
 393029, 2378  
 393079, 2400  
 393546, 2378, 2742  
 393750, 2378, 2706  
 393751, 2378, 2672, 2706  
 393752, 2378, 2672, 2678, 2706  
 393753, 2378, 2706, 2745  
 394559, 2378, 2622  
 395424, 720  
 395505, 1391  
 395977, 454  
 397856, 2378, 2731, 2733, 2736  
 398559, 2378, 2962  
 399264, 2731, 2732, 2733, 2734, 2736  
 399265, 2731, 2732, 2733, 2734, 2736  
 399729, 2702  
 400417, 2702  
 401269, 2025, 2378, 2610, 2675, 2719  
 401014, 2378  
 401435, 2378, 2695  
 405417, 2702  
 405874, 2378, 2677, 2692, 2718  
 406559, 447  
 406597, 2034, 2378  
 407938, 2378  
 408344, 2378, 2719  
 408965, 2378, 2712  
 409044, 2378  
 409345, 2378, 2744  
 409507, 2378, 2901  
 410204, 2378, 2384  
 410205, 2378, 2384  
 410206, 2378, 2384  
 410207, 2378, 2384  
 410208, 2378, 2384  
 410209, 2378, 2384  
 410404, 1732, 2378, 2622, 2640  
 410415, 1064, 1088  
 410598, 2378  
 411127, 1636, 2378, 2954  
 411155, 2702  
 412201, 2702  
 412398, 2720  
 412409, 2378, 2742  
 412545, 2378, 2441  
 412664, 1064  
 412931, 2413  
 413070, 2378, 2385  
 414051, 1064  
 414761, 2736  
 415100, 2575  
 415566, 2378, 2751, 2899  
 416710, 2378, 2441  
 416752, 3008  
 417202, 2378, 2577, 2889, 2890  
 417284, 2378, 2575  
 417702, 2378  
 417727, 2378, 2685, 2745  
 418136, 2378, 2714  
 418237, 2031, 2378  
 418787, 2378, 2706  
 419257, 2378, 2706  
 419258, 2378, 2706  
 419259, 2378, 2706  
 419260, 2378, 2706  
 419261, 2378, 2706  
 419262, 2378, 2706  
 419263, 2378, 2706  
 419332, 2413  
 420130, 2888  
 420140, 2378  
 420355, 2378, 2751  
 420445, 562, 1637, 2008, 2036, 2130, 2378  
 420446, 1637, 2008, 2036, 2130, 2378  
 420447, 2008, 2378  
 420648, 2378  
 420719, 1033  
 421076, 1064  
 421137, 2378, 2707  
 421201, 1064, 1076  
 421367, 2378, 2685  
 421880, 2378, 2705, 2706  
 421878, 1046  
 422195, 2378  
 422303, 2378, 2706  
 422330, 2378, 2696  
 423075, 2378, 2730  
 423076, 2730  
 423104, 2378  
 423230, 2378, 2965  
 423303, 2378  
 424336, 2702  
 425129, 2378, 2706  
 425648, 1637, 2378, 2949  
 425679, 2378, 2706  
 425915, 2378  
 426120, 2378, 2720  
 426170, 2378, 2745  
 426202, 2378  
 426513, 2378, 2724  
 427928, 2378  
 427958, 2708  
 427995, 2702  
 428483, 2856  
 428654, 2378, 2488, 2491, 2580, 2899  
 429341, 2702  
 429445, 2378  
 429516, 2246, 2378  
 429535, 2378, 2650  
 429792, 2378  
 429843, 2378, 2860  
 429958, 2378  
 430212, 1636, 2251, 2378, 2943  
 430215, 2378, 2556  
 430508, 2645  
 430520, 2378, 2686, 2712  
 430734, 2395  
 431144, 2597  
 431243, 2997  
 432047, 2378  
 432198, 2414  
 433534, 1029  
 433985, 2702  
 434049, 1636, 2378, 2958  
 434287, 2036, 2378  
 434288, 2378  
 434330, 2378  
 436414, 1271  
 436733, 2378, 2766  
 436735, 2414  
 436764, 2414  
 436787, 2378, 2706  
 436898, 1636  
 437044, 2378  
 437499, 2378, 2959  
 438309, 2378, 2706  
 438816, 1637, 1854, 2378, 2954  
 439021, 2856, 2904  
 439180, 2378, 2747  
 439451, 2378, 2688, 2689  
 439882, 2645  
 440262, 451  
 440621, 1637, 2378, 2959  
 441831, 2378, 2888, 2898  
 442986, 2708

## INDEX OF PATENTS

443105, 1634,2036,2378	472498, 750	493193, 1076
443205, 2378,2695	473161, 2709	493689, 454
443215, 2378	473306, 2605	493830, 2707
443629, 1033	473511, 452	493905, 391
444084, 2860	474527, 1391	494255, 2590
444127, 454	474540, 2702	494790, 2385,2487
444515, 77	474561, 2978	494791, 2385,2487
444775, 2765	474814, 2745	494792, 2385,2487,
444951, 2889	474850, 2921	2693
444952, 2889	475062, 299	494793, 2385,2487
445528, 2581	475586, 950	494891, 78
446060, 1239,1432	475824, 1064	495228, 2679
447790, 454	477242, 2709	495263, 2500
448364, 2899	477375, 751, 834	495458, 2901
450264, 2387,2488,2491	477751, 2702	496000, 290
2496,2580	477755, 1271,1291	496075, 328
450492, 454	477830, 2730	496399, 2677
450963, 2863	478291, 2702	496929, 2702
451651, 1064,1076	478543, 2384,2103	497426, 2731
451847, 2441	478851, 2714	497884, 2891
452869, 2718	478955, 2605	498162, 2605
453801, 1391	479305, 2889	498206, 2677
453849, 2563	479988, 1421,2011	498257, 2898
454281, 1636	480109, 1030	500785, 826
455245, 1636,1901,2622	480334, 299	500786, 826, 986
455333, 2706	480669, 445, 416	502013, 2724
456303, 2708	481407, 812	502546, 2389
456508, 1825,2949	481485, 2692	502547, 2389
456821, 77	481685, 2441	502643, 2700
457712, 2750	482298, 2606	502921, 2389
457799, 2414	482604, 2612	503401, 2389
458157, 2677,2684	483378, 2730	503402, 2389
458663, 2889,2899	483590, 2636	503583, 1711,2247
459136, 2889	483701, 2438,2491,2580	503584, 2247
459137, 2889	2899	503585, 2247
460086, 2719	483709, 2015	503586, 2247,2554
460570, 2808	483784, 2704	503587, 2247
460629, 2622	484546, 790	503847, 1217,1221
461272, 2597	484777, 2677	504905, 2389
461429, 1023	485126, 1064, 1239,	505362, 2686
461430, 1023	1271	505399, 2707
461431, 1023	485634, 1023	505462, 2718
463039, 2593	485840, 1046	505520, 999,1391
463986, 2731	487000, 2708	505755, 273
464120, 2655	487067, 2603	506784, 2958
465280, 2014	487167, 2385,2543	506839, 2702
465784, 2680	487205, 2543	507213, 2601
467661, 2705	488416, 2562	507279, 2958
468326, 2414	488570, 2677	507749, 2385,2581
468891, 1390	488967, 98	507880, 2723
469064, 2740	489684, 1897,2044,2972	507895, 2993
469439, 1361,1391	490170, 2712	507964, 2495
470447, 2414	490195, 2593	508112, 2673
470451, 2387,2581	490641, 2766	508124, 1899,2673
471451, 2401	490981, 1064	508316, 2702
471186, 2878	491234, 447	508494, 2694
471422, 2580	491481, 843, 985	508497, 2611,2670
471469, 2898	491880, 2771	508770, 2730
471614, 452	492196, 273,1086.	509124, 2889
471618, 1064	492260, 2678	509512, 454

## United States

509664, 1391	532468, 2999,3058	555914, 2100
509762, 2697	533066, 2563	556017, 2388
510168, 290	534445, 2674	556380, 2748
510617, 2545	534446, 2677	556750, 1072
513791, 2701	534505, 2696	556796, 2746
513876, 2723	534968, 2672	556928, 2710
514124, 812	535384, 2697	557526, 2704
514838, 2492,2551,2672	535552, 2398	559392, 2622,2632
514983, 1391	535553, 2398	559425, 2708
516076, 2645	535882, 1244,1271	559638, 2971
516080, 2645	536324, 2441	559658, 2853
516766, 2385	537786, 2415	559783, 2441
516814, 2678	538618, 2978	559823, 2384,2677
516924, 2132,2150,2157	538794, 449	559824, 2384,2581
517001, 813, 985	539698, 2717	559827, 2710
517011, 2694	540655, 2903	560699, 454
517098, 985, 989	541041, 1383,1391	560771, 2441,2480
517275, 2889	541573, 1956	561624, 2496
517972, 2723	541597, 1292	562103, 420
517987, 2545	541899, 1858	562626, 2622,2632
518386, 2385	541941, 454	562732, 2622,2632
518387, 2385	542429, 1064	563214, 2623,2626,2636
518388, 2385	542452, 2717	563075, 2388
519645, 2903	542626, 1391	564343, 2545
519646, 2903	542692, 2544	565099, 2709
519702, 2247	542932, 274	568806, 2730
520538, 2705	543108, 2544,2545	568104, 2537
520770, 3062,3077	543197, 2539	568105, 2537
520825, 2707	543826, 999	568106, 2537
520994, 1383	544924, 1636	568360, 2704
521834, 2563	545128, 454	*568498, 2709
522566, 2911	545578, 2723	568877, 2606
522792, 2724	545800, 2704	568940, 2705
522978, 2247	546086, 2441	569032, 2731
523058, 2713	*546360, 2722	569117, 2703
523430, 2678	546596, 1239,1243,1271	569591, 681
524651, 470	547120, 2606	569669, 2977
525152, 2704	547625, 2742	569704, 3078
525540, 27	548303, 1391	569969, 2708
525761, 748	548512, 2709	569971, 2708
525985, 2601	548623, 2731,2733,2735	570183, 478
526116, 846, 985, 993	548919, 2704	570728, 2889
526752, 1422,1425,1456	549138, 1391	571530, 97,2626,2650
526780, 2774	550079, 2910	571837, 2704
527680, 1271	550133, 2679	572134, 2539
527718, 747	550288, 2891	572135, 2545
528273, 2731,2732,2733	550472, 2939	572193, 1004
2734,2736	551079, 2704	573132, 2576
528777, 2702	551306, 2939	573564, 2748
528812, 2551	551456, 2545	573852, 2714
529368, 2698	551970, 2704	573928, 2892,2899
529892, 2695	552209, 2544	574059, 2853
530634, 270	552567, 2699	574111, 2415
530635, 270, 305	552697, 2671	574147, 2889
530817, 2680	552841, 2704	574725, 2512
530826, 3006,3060	552935, 2500	575387, 2709
531158, 2622	553104, 2704	575765, 1724,2944
531787, 1023	553270, 2544,2545	576045, 2709
532204, 2708	555596, 2385	576532, 2944,2954

- 576057, 2563  
 577187, 2595  
 578355, 2670  
 578362, 2711  
 578394, 2702  
 578548, 1271  
 578566, 431  
 578714, 2581  
 579112, 2708  
 579275, 2704  
 579957, 2564  
 581287, 2698  
 581894, 2595  
 582221, 2518  
 582320, 1369  
 583516, 2540  
 583517, 2671  
 583590, 2703  
 583783, 453  
 584353, 2704  
 584390, 454  
 584862, 2888  
 585285, 478  
 585404, 1094  
 586586, 2944  
 585610, 2458  
 586750, 228  
 586771, 2708  
 586772, 2708  
 586840, 2698  
 586907, 78, 2009  
 587096, 2612  
 587097, 2612, 2619  
 587211, 2581  
 588790, 2807  
 588870, 2551, 2671, 2672  
 588912, 2708  
 590143, 813  
 590145, 2678  
 590842, 2612  
 590931, 1635, 2247  
 591087, 751, 840, 985  
 591289, 2702  
 591311, 2702  
 591346, 2890  
 591968, 97  
 592006, 1071  
 592485, 2943, 2954  
 592877, 2714  
 592895, 2963  
 593106, 2595  
 594435, 681  
 594594, 2599  
 594888, 2647  
 595355, 2492, 2581  
 595408, 453  
 595580, 2699  
 595787, 2698  
 596058, 454  
 596264, 2704  
 596265, 447  
 596662, 2518  
 597144, 2492, 2678  
 597929, 2677  
 598028, 2746  
 598351, 1239  
 598648, 2384, 2551  
 598649, 2551  
 598730, 2696  
 598918, 681  
 599589, 2255  
 599631, 2809  
 599905, 2708  
 599906, 2704  
 600126, 2704  
 600556, 2385, 2551  
 600688, 2889  
 600824, 2683, 2892, 2899  
 601214, 2684  
 601927, 2670, 2744  
 602159, 2721, 2722  
 602697, 602  
 602797, 2670  
 602962, 2441  
 603001, 2610  
 603402, 840  
 603447, 453  
 603508, 748  
 603526, 2721  
 603913, 2591  
 604181, 2388  
 604206, 3062, 3063  
 604216, 2699  
 604970, 2708  
 605185, 2713  
 605694, 681  
 605931, 2082  
 606061, 2704  
 607091, 660  
 607150, 226  
 607415, 2685, 2689, 2699  
 607416, 2685, 2689, 2699  
 607554, 2549  
 607943, 944  
 608019, 2395  
 608033, 226  
 608194, 225  
 608512, 2673, 2678  
 608652, 2415  
 608724, 2702  
 608786, 2671, 2672  
 608727, 2671, 2672  
 608948, 2564  
 608963, 2745  
 609473, 2671, 2672  
 610361, 2514, 2515  
 610398, 2889  
 610566, 2671, 2672  
 610615, 2671, 2672  
 610619, 225  
 610626, 2761  
 610630, 2717  
 610664, 2512  
 610728, 2492, 2537  
 610861, 2889  
 610953, 2671, 2672  
 611396, 2703  
 612066, 1781, 2613  
 612067, 2613, 2672  
 612189, 225  
 612531, 2671, 2672  
 612553, 2613  
 612614, 1114  
 612848, 2704  
 613145, 2716  
 613186, 2703  
 613400, 2671, 2672  
 614514, 2671, 2672  
 615319, 2581, 2613  
 615446, 2593, 2759  
 616709, 226  
 616926, 1072  
 617009, 75, 85, 91  
 617119, 2701  
 617450, 2551, 2671, 2672  
 617561, 226  
 617676, 2703  
 617747, 2695  
 618399, 226  
 618692, 2660  
 618772, 812  
 618939, 2698  
 619037, 2722  
 619406, 2742  
 619617, 2918  
 620751, 282  
 620775, 2978  
 621360, 2579, 2714  
 621382, 2613, 2672  
 621433, 2671, 2672  
 621434, 2671, 2672  
 621608, 1292  
 622087, 2076  
 622243, 2729  
 622290, 2671, 2672  
 622291, 2671, 2672  
 622292, 2671, 2672  
 622293, 2671, 2672  
 622294, 2671, 2672  
 622450, 2706  
 622727, 2496, 2506, 2507  
 2508, 2539, 2581  
 2613  
 623148, 2702  
 623807, 1064  
 623963, 2890  
 624404, 2705



**United States**

624800, 228	646381, 75, 91, 138	656869, 2609
625033, 102, 2646	646787, 225	657217, 2701
625313, 2626, 2649, 2753	646799, 91, 103	657293, 227
625345, 2647	646844, 2761	657535, 1791, 2675
625682, 2985	646922, 2700	657555, 2893
625684, 2964	646923, 2700	657705, 226
625908, 2961	647805, 657	657749, 2751, 2861
626732, 2672, 2685	647979, 2601	657818, 75, 85
627031, 3024	648115, 226	657849, 231, 3072, 3078
627296, 2584	648147, 2063	657956, 2731, 2733, 2737
627392, 2701	648183, 1072	658105, 425
627493, 2605, 2619	648222, 2961	658632, 85, 91
627749, 1391	648275, 226	659236, 1232, 1302
628463, 2388, 2584, 2741	648322, 812, 838, 986	659505, 2599
628596, 2714	648339, 2765	659721, 227
628609, 226	648389, 2395	659747, 2739
629273, 2736	648415, 2718	660727, 2167
630944, 2672, 2685	648580, 2388, 2497	660893, 2715
630945, 2672, 2685	648723, 2955	661214, 85
631295, 2593	649003, 2700	661263, 2613, 2620
631546, 2697	649210, 453	661496, 1064
632163, 2619	649385, 2731, 2732, 2733	661497, 1064
632394, 812, 986	649690, 2761	661649, 227
632408, 2761	649852, 3058	662444, 2659, 2761
632605, 3006, 3018, 3019	650431, 2659, 2731, 2732	662585, 2388
632791, 2480	650431, 2659, 2731, 2732	662645, 2702
633306, 2684	650442, 226	662949, 2714
633611, 2247	650715, 85	662961, 1781, 2733, 2737
634362, 226	650739, 2731, 2732, 2733	663011, 2732, 2735
634571, 2808, 3075	651364, 2612	663194, 2731, 2733, 2737
635574, 1023	651717, 1383	663572, 2492
635917, 2684, 2687	652119, 1141	663739, 2624
636924, 1115, 1161, 1162	652164, 2708	663759, 657
636925, 1161, 1162	652455, 2253, 2944	664223, 2731, 2732, 2733
637090, 98	652505, 2253, 2944	664257, 449
638647, 2060	652672, 1023	664258, 449
638707, 449	652687, 1212, 1239, 1243	664259, 449
639376, 2713	652688, 1212, 1239, 1243	664260, 449
639818, 2576	652689, 1212, 1239	664630, 1119
639997, 2704	652690, 1212, 1239	665792, 2094, 2251
640037, 1278	652993, 2723	665975, 1899, 2624
640137, 2863	652999, 2741	665989, 2714
640160, 1826	653579, 2749	666485, 2955
640213, 2958	654335, 1072	666493, 2731, 2732, 2733
641623, 2898, 3075	654398, 2167	667759, 1779, 1788
642330, 442	654518, 203, 657	667770, 2601
642390, 1301	654688, 2767	669330, 2686, 2688
643012, 2777	654689, 2767	669331, 2686, 2688
643328, 425	654691, 328	669358, 78, 2659
643491, 2584	654951, 328, 2660	669933, 2114
643781, 226	654952, 328, 2660	670098, 230
644403, 2955	654988, 149	
644724, 2712	655546, 226	
645209, 2891, 2899	655706, 2688	
645698, 226	655735, 2619	
645920, 2731, 2733, 2736	655845, 1788	
646044, 3070, 3082	656319, 226	
646351, 91		
646356, 2708		

670277, 2880	686321, 2731,2733,2737	693635, 1363, 1380
670346, 2659	687085, 1046	693684, 294
670559, 1109,1116,1117	687131, 2659	693896, 301
670689, 2762	687517, 2659, 2700	694024, 1229, 1291
671081, 2954	687518, 2700	694109, 227
672350, 85, 91	687834, 1111, 1121	694678, 302
672534, 2748, 2908	688020, 1111, 1146	694946, 2581, 3056
672909, 2731,2732,2733	688222, 2700, 2715	695127, 2659,3018,3019
2736	688223, 2700, 2715	3022,3035,3058
672946, 78	688469, 1111, 1146	695129, 2979
673070, 1879	688470, 1111, 1151	695159, 2731,2732,2733
673377, 2944	688471, 1151	2736
673396, 2732, 2736	688472, 1151	695180, 1108,1112,1124
673665, 2563	688538, 1239	695198, 2700
674159, 2015, 2255	688640, 2780	695270, 2741
674291, 2015, 2255	688813, 2765	695573, 299, 2416
675451, 2687,2705,2709	688872, 1239	695723, 2515
675760, 815	689117, 2731,2732,2733	695754, 300
676506, 2726	2737	695778, 806
676663, 1391	689118, 2731,2732,2733	695795, 203, 657
676664, 1391	2737	695813, 2724
677012, 2388, 2674	689336, 3071, 3082	695866, 2724
677450, 230	689337, 3072, 3075	695867, 2724
677670, 1108, 1157	689408, 2731,2732,2733	695927, 2761
677692, 1157	2737	696123, 2742
677803, 2979	689536, 2731,2732,2735	696156, 181, 2550
678082, 2114	689634, 303	696314, 295
678179, 1064, 1087	690062, 1146	696351, 2725
679203, 132, 150, 504	690133, 1115,1116,1117	696352, 2725
679204, 132, 149, 150	690211, 3017,3031,3051	696353, 2725
504,3000,3025	3071	696354, 2725
679425, 225	690506, 304	696365, 2724
680131, 227	690506, 304	696366, 2724
680227, 2695	690724, 2396	696367, 2724
680514, 2114	690728, 2167	696368, 2724
680719, 2622, 2644	690915, 2581	696369, 2724
680867, 1383	691091, 293	696800, 203
681085, 815, 985	691257, 92	696822, 298
681698, 116, 1117, 1119	691770, 297	696879, 2725
682390, 2979	691771, 297	696886, 2724
682494, 227	691951, 3079	696887, 2724
682899, 2659, 2699	691952, 3079	696888, 2724
683177, 2504	691958, 300	696889, 2724
683464, 3001, 3002	691966, 2550	696890, 2724
683492, 1004	692018, 1138, 1151	696891, 2724
683862, 2731,2732,2733	692102, 1788,1892,2091	696892, 2724
2737	692142, 2952	696893, 2724
683785, 570	692143, 2952	696894, 2724
683836, 294, 299	692337, 2731,2732,2733	696899, 425
683956, 2730,2731,2732	2734,2737	697438, 1122
2733,2734,2737	692363, 2762, 2737	697417, 2724
683981, 2595	692497, 132, 149, 150	697418, 2724
685551, 2609, 2620	660,3025	697419, 2724
685552, 2609, 2620	692631, 2646	697420, 2724
685779, 1064, 1076	692775, 132, 3047	697421, 2724
685889, 227	693215, 293	697422, 2724
686021, 1119	693226, 2708	697423, 2724
686022, 1119	693547, 2952	697424, 2724
686050, 2746	693548, 2952	697425, 2724

## United State.

697580, 102, 2636  
 697637, 2741  
 697790, 2578, 2617  
 697816, 2725  
 697917, 2724  
 697918, 2724  
 697919, 2724  
 697920, 2724  
 697921, 2724  
 697922, 2724  
 697923, 2724  
 697924, 2724  
 697925, 2724  
 697926, 2725  
 697927, 2725  
 698024, 2724  
 698026, 3060  
 698030, 2701  
 698254, 85, 92  
 698401, 2724  
 698402, 2724  
 698428, 203  
 698462, 927  
 698463, 927  
 698464, 927  
 698512, 2724  
 698513, 2724  
 698514, 2724  
 698515, 2724  
 698516, 2724  
 698517, 2724  
 698632, 424  
 698704, 805  
 698761, 2527  
 699011, 1282, 1291, 1383  
 1301  
 699087, 2724  
 699088, 2724  
 699089, 2724  
 699090, 2724  
 699091, 2724  
 699092, 2724  
 699093, 2724  
 699094, 2724  
 699155, 1732, 2623  
 699458, 2700  
 699459, 2700  
 699516, 6692, 2716  
 699622, 2724  
 699623, 2724  
 699624, 2724  
 699632, 2725  
 699613, 2725  
 699676, 2724  
 700121, 2704  
 700122, 2706  
 700123, 2724  
 700124, 2724  
 700125, 2659

700140, 2889  
 700144, 2724  
 700154, 2725  
 700155, 2725  
 700249, 1108  
 700373, 2406  
 700471, 2753, 2760  
 700512, 1119, 1157  
 700537, 1099  
 700616, 203  
 700655, 2724  
 700656, 2724  
 700657, 2724  
 700658, 2724  
 700659, 2724  
 700660, 2724  
 700793, 2576, 2707  
 700884, 1785, 2539, 2540  
 2541  
 700885, 1785, 2538, 2540  
 2671  
 700642, 2724  
 700643, 2724  
 700644, 2724  
 700645, 2724  
 700646, 2724  
 701271, 299  
 701357, 2612, 2675, 2756  
 701476, 2704  
 701501, 2958  
 701604, 927  
 701617, 2725  
 701736, 2724  
 701737, 2724  
 701738, 2724  
 701739, 2724  
 701740, 2724  
 701741, 2724  
 701765, 2725  
 701766, 2725  
 702142, 299  
 702163, 2635  
 702382, 2636, 3074  
 702556, 297  
 702571, 456  
 702799, 2724  
 702877, 805  
 703000, 2725  
 703135, 657, 2659  
 703198, 2706  
 703199, 2768  
 703228, 2698  
 703239, 2725  
 703290, 2741  
 703682, 303  
 703896, 2725  
 704082, 2610  
 704259, 297  
 704349, 463  
 704412, 1064, 1070  
 704462, 2724  
 704463, 2724  
 704464, 2724  
 704628, 2555  
 704748, 2724  
 704831, 1111, 1123, 1302  
 704838, 2724  
 704881, 2724  
 704882, 2724  
 705139, 2564  
 705244, 106, 336, 2612,  
 2632, 2650  
 705249, 2724  
 705359, 2724  
 705490, 2912  
 705748, 85  
 705764, 2724  
 705765, 2724  
 705766, 2724  
 705772, 2731, 2732, 2734,  
 2837  
 705691, 2624, 2633, 2640  
 706036, 2715  
 706441, 299  
 706541, 1773, 2785  
 706634, 2569  
 706758, 2724  
 707263, 2727  
 707270, 2524, 2529  
 707271, 2525, 2529  
 707306, 2581, 3056  
 707425, 2724  
 707456, 2706  
 707563, 2715  
 707564, 2715  
 707574, 2713  
 707595, 2724  
 707633, 687  
 707634, 687  
 707892, 456  
 707903, 203  
 707985, 456  
 707986, 456  
 708058, 299  
 708333, 927  
 708456, 140, 3006  
 708457, 149, 3006  
 708483, 2724  
 708484, 2724  
 708649, 2493  
 708760, 3068, 3071, 3079  
 708761, 3069, 3077, 3078,  
 3079, 3081  
 708828, 2731, 2733, 2737  
 708872, 2702  
 708855, 2714  
 708960, 2725  
 709411, 2724

700412, 2724	713360, 2635, 2638	721314, 452
700488, 297	713552, 2412	721462, 2725
700524, 2638	713769, 2724	721463, 2725
700544, 456	713770, 2724	722064, 227
700842, 1030	713771, 2724	722981, 1107, 1112, 1124, .
700867, 685, 695	713772, 2724	723054, 2892
700868, 685, 695	713800, 1402	723088, 2652
700922, 3009, 3052	713863, 2735	723089, 2563
700984, 2733, 2736	713999, 2622, 2644	723147, 2638
710014, 302	714145, 788	723311, 2558, 2675
710019, 2855, 2856, 2921	714216, 300	723329, 1844, 1848, 2598
710091, 2560	714447, 2690	723595, 1107
710198, 2724	714791, 2601	723596, 1107, 1200
710299, 2731, 2733, 2737	714858, 2603	723938, 2727
710368, 2725	714859, 2603	724020, 3064, 3069, 3071, 3073
710461, 456	714880, 2565	724251, 1131
710648, 3000	714917, 2724	724311, 2874
710750, 2725	714918, 2724	724616, 3077, 3078
710751, 2725	714950, 2725	724932, 2063, 2079
710752, 2725	715142, 1246, 1289	725002, 2390, 2562
710753, 2725	715186, 2727	725011, 2725
710754, 2725	715206, 2724	725016, 2635, 3075
710755, 2725	715295, 2725	725180, 455
710819, 89, 217, 2635	715748, 2092	725361, 1005
710893, 2522	715778, 1064, 1088, 1092	725427, 1271, 1287
711177, 2725	716138, 2635	725879, 2748
711178, 2736	716142, 1239	725890, 2525, 2529
711186, 1108, 1197	716245, 2724	726036, 282
711187, 1080, 1109, 1167	716290, 2727	726076, 1108
711188, 1080, 1109	716291, 2727	726471, 2727
711215, 2724	716347, 2725	726502, 2725
711227, 2725	716348, 2725	726503, 2725
711228, 2725	716349, 2725	726504, 2725
711230, 2725	716778, 3063	726614, 2897
711230, 2725	716945, 2727	726783, 2517, 2527
711485, 1064, 1070	716985, 1116, 1117, 1122	727024, 2527, 2530
711508, 2724	717050, 102, 105	727026, 2527, 2530
711529, 2725	717085, 2760	727198, 2725
711530, 2725	717184, 449	727199, 2725
711875, 2750, 2878	717355, 3063, 3069, 3070	727200, 2725
712200, 3027, 3032, 3036, 3052	717413, 2724	727201, 2725
712387, 2724	717699, 448	727202, 2725
712388, 2724	717700, 448	727524, 2875
712406, 2554	717793, 2892	727542, 2724
712411, 2725	718484, 2 031, 2093, 2111, 2555	727798, 308
712412, 2725	718670, 2384	728245, 2878
712413, 2725	719223, 927, 2395	728311, 2727
712414, 2725	719332, 1107	728335, 806
712415, 2725	719333, 1107, 1198	728607, 2731, 2752, 2733, 2734, 2737
712416, 2725	719498, 2726	728851, 2603
712610, 2727	719689, 2726	728867, 2731, 2733, 2735
712611, 2727	719787, 3078, 3079	728914, 1241, 1239, 1291
712691, 2716	720361, 1399	729170, 1072
712756, 2646	720482, 2725	729643, 1244
713168, 2727	720797, 2725	729735, 1111, 1116, 1120
713169, 2659	720812, 2741	729749, 87, 2643
713209, 2731, 2732, 2733, 2735	720852, 2727	729953, 300
	721011, 2916	

## United States

- 729090, 2541, 2743, 3020,  
 3036, 3041, 3051  
 730102, 2680  
 730126, 2726  
 730127, 2726  
 730303, 2727  
 730439, 273  
 730454, 2882  
 730514, 2690  
 730959, 2726  
 731002, 2655  
 731290, 273, 329  
 731367, 2678  
 731406, 2726  
 731614, 2726  
 731723, 2591  
 731758, 1107  
 731821, 2727  
 732189, 2850  
 732583, 2726  
 732784, 2634  
 733082, 1046  
 733110, 2540  
 733216, 2724  
 733412, 2635  
 733452, 1006  
 733465, 1006  
 733729, 3007  
 733741, 2977  
 733742, 2977  
 733797, 2765  
 733969, 298  
 734123, 149, 2309, 2494,  
 3006, 3024, 3025,  
 3028, 3029, 3040,  
 3058  
 734256, 2725  
 734333, 227  
 734397, 1063, 1064  
 734462, 2726  
 734463, 2726  
 734762, 2911  
 734849, 1109  
 735278, 2671, 2774  
 735436, 2892  
 735579, 2731, 2732, 2733,  
 2737  
 735643, 2717  
 735048, 3023  
 736087, 1223, 1239  
 736098, 2417  
 736229, 2725  
 736230, 2725  
 736231, 2725  
 736232, 2725  
 736233, 2725  
 736625, 1427  
 736773, 2731, 2732, 2737  
 736957, 2604  
 736876, 1108, 1194  
 737031, 2727  
 737067, 2992  
 737233, 1291  
 737256, 2643  
 737526, 2743  
 737625, 1112, 1200  
 737626, 1107, 1112  
 737698, 2725  
 737773, 2725  
 737774, 2725  
 738326, 1023  
 738533, 3036, 3041  
 739108, 1109  
 739246, 662  
 739371, 2696  
 739514, 2700  
 739580, 3067  
 739713, 2731, 2732, 2733,  
 2737  
 739751, 662  
 739753, 2724  
 739920, 881  
 739921, 881  
 741396, 931  
 741554, 2385  
 741615, 2992  
 742174, 442  
 742430, 2435  
 742454, 2731, 2732, 2733,  
 2734, 2736  
 742455, 2731, 2732, 2733,  
 2734, 2736  
 742502, 1161, 1164  
 742967, 2659  
 743031, 2659  
 743105, 2726  
 743349, 1004  
 743422, 1779, 1788  
 743427, 2564  
 743455, 2708  
 743922, 1427  
 744039, 2916  
 744095, 2563  
 744510, 934, 2550  
 745044, 2726  
 745276, 2630, 2646  
 745802, 2964  
 746348, 2697  
 746369, 454  
 746909, 2589  
 747629, 2518  
 747738, 2747, 2910  
 747898, 2392, 2563  
 748101, 2482  
 748200, 2251  
 748308, 1402  
 748709, 2646, 2760  
 749040, 1004  
 749053, 2725  
 749078, 2388  
 749297, 2601, 2720  
 749311, 1063, 1064  
 749855, 2699  
 750018, 2731, 2732, 2733  
 2734, 2737  
 750119, 2731, 2737  
 750502, 217, 2635  
 750639, 2739  
 750694, 227  
 751076, 1832  
 751941, 1108, 1194  
 752165, 1115, 1117  
 752323, 2874  
 752388, 3058  
 752592, 2659  
 752677, 1291  
 752947, 3001  
 753206, 3060  
 753300, 3060  
 753310, 2912  
 753392, 2724  
 753534, 2730  
 753994, 2978  
 754474, 681  
 754147, 712, 900  
 755247, 1232, 1303  
 755378, 814, 986  
 755479, 460  
 755716, 3066  
 755765, 227  
 756176, 2574  
 756545, 2717  
 757531, 1046  
 757600, 2725  
 757778, 452  
 758222, 1109  
 758335, 2547, 2659  
 758625, 2910  
 758774, 693, 881  
 758775, 881  
 758806, 2702  
 758844, 1110  
 758851, 2725  
 759332, 3073, 3082  
 759413, 2715  
 759804, 2704  
 759808, 2761  
 759978, 2599, 2785  
 760142, 2708  
 760561, 1046  
 760585, 2888, 2892  
 760939, 2422  
 761188, 2416, 2481  
 761189, 2416, 2481  
 7615\*2, 662  
 761590, 2724  
 761664, 2715

- 762139, 291, 294  
 762149, 3035  
 762446, 1869  
 762447, 1825, 2975  
 762757, 2063, 2079  
 763091, 2695  
 763266, 3068, 3070  
 763461, 1004  
 763472, 205, 657  
 763491, 943  
 763564, 2731, 2732, 2733,  
     2736  
 764598, 2724  
 764697, 2717  
 764776, 1956  
 764943, 92  
 764944, 92  
 765389, 232  
 765520, 1244  
 765834, 1239  
 766167, 2591  
 766247, 2713  
 766367, 2703  
 766717, 2406  
 767090, 2406  
 767091, 2406  
 767335, 1239, 1448  
 767421, 3067  
 767632, 2688  
 767646, 2756  
 767682, 2620  
 767822, 240, 657  
 767900, 2659  
 767943, 2390  
 767944, 2390  
 768073, 3059  
 768108, 1290, 1386  
 768129, 2724  
 769061, 428, 662  
 769585, 1196  
 770463, 297, 2405  
 770920, 3066  
 770940, 2512, 2515, 2529  
 771403, 303  
 771629, 843  
 771706, 2405  
 771758, 2731, 2732, 2733,  
     2738  
 772103, 2616  
 772192, 303  
 772862, 869  
 772993, 2606  
 773349, 2702  
 773412, 3071  
 773469, 429  
 773783, 429  
 773941, 5, 168, 274,  
     657  
 773978, 2731, 2737  
 774083, 1141  
 774135, 2405  
 774151, 2384  
 774649, 2405  
 774677, 3027, 3031, 3036,  
     3038, 3042  
 774713, 3026, 3027, 3042  
 774714, 3026, 3027, 3042  
 774824, 2416  
 774982, 296  
 775123, 869  
 775525, 295  
 775829, 298  
 776192, 3019  
 776256, 2712  
 776368, 2727  
 776480, 3019  
 776543, 1006.4  
 777125, 2948, 2965  
 777485, 881  
 777486, 881  
 777577, 1072  
 777712, 2443  
 777937, 2704  
 777987, 848  
 777988, 848  
 777989, 848  
 777990, 848  
 777991, 848  
 778099, 1107, 1196  
 778173, 414, 415  
 778232, 2617  
 779175, 89, 90  
 779421, 1827  
 779422, 1827  
 779375, 2614  
 779377, 2526, 2532  
 779553, 3019  
 779760, 2954, 2955  
 780465, 2666  
 780582, 2725  
 781024, 2714  
 781097, 301  
 781131, 2735  
 781178, 2564  
 781469, 2882  
 781472, 926  
 781612, 299  
 781826, 814, 849, 986  
 781880, 2765  
 781881, 2765  
 781882, 2765  
 781899, 2765  
 781894, 2765  
 781926, 2111  
 782782, 1399  
 782959, 2407  
 783137, 301  
 783569, 3065  
 783791, 2610, 2620  
 783783, 1064  
 783828, 2613  
 784018, 2742  
 784378, 2515  
 784450, 455  
 784474, 2563  
 785216, 431, 662  
 785281, 2705  
 785510, 2737  
 786144, 2638  
 786264, 226, 3065  
 786343, 2725  
 786524, 2727  
 786534, 2892  
 786535, 2892  
 786536, 2848, 2920  
 787400, 2714  
 787971, 294  
 788043, 2761  
 788129, 2701  
 788512, 1063, 1064  
 788633, 295  
 789127, 452  
 789178, 2713  
 789249, 2609, 2620  
 789271, 2407  
 789354, 2708  
 789416, 273, 329  
 789417, 273  
 789418, 273  
 789634, 1112  
 789691, 2406  
 789694, 2704, 2724  
 789695, 2704, 2724  
 789792, 294  
 789887, 273  
 789977, 569  
 789978, 563, 574  
 790089, 2948  
 790252, 2726  
 790398, 2725  
 790516, 2737  
 790565, 149, 2399, 2494,  
     3006, 3024, 3025,  
     3028, 3029, 3040,  
     3053, 3058  
 790601, 2525, 2529  
 790840, 1831  
 790918, 2977  
 790954, 2725  
 790965, 2725  
 791111, 2977  
 791385, 3082  
 791386, 3982  
 791503, 2744, 2746  
 791648, 2725  
 791649, 2725  
 791946, 2725

## United States

792001, 3058	803502, 1785	815600, 2766, 3077
792149, 3031, 3053	803952, 2754	815601, 1004
792205, 1107, 1108, 1151	804021, 698	815821, 2962
792512, 2957	804191, 85, 90, 92	816359, 2565
792533, 2702	804358, 2405	816391, 2702
792612, 2700	804515, 1303	816404, 3072, 3073
792763, 2703	804522, 2715	816624, 451
792888, 3068, 3071, 3073	804690, 1046, 1074	816648, 2434
793026, 1033	804691, 1046, 1074	816918, 1112, 1147
793542, 2407	804692, 1046	817082, 850
793543, 1161, 1167	804785, 1046, 1074	817141, 2493, 2566, 2567
793745, 1109	804960, 3017, 3046	817188, 3024
794181, 2742	805174, 2405	817569, 2883, 2912
794512, 1399	805456, 3071	817960, 295
794581, 1788	805466, 2579	818206, 300
794934, 2696	805470, 2687, 2724	819058, 2731, 2732,
795033, 2704	805544, 2732, 2736	2733, 2736
795525, 1004	805600, 2732, 2738	819072, 2731, 2732, 2733
795526, 82	805701, 1027	2737
796740, 82	806131, 2254	819262, 986, 991, 998
796878, 2730	806348, 240	820159, 3005
797002, 2703	806533, 90, 92	820351, 2623
797024, 2390	806660, 3002	820373, 3005
797373, 2390, 3031	806857, 92	820374, 3005
797654, 2723	806866, 2554	820694, 2610
798027, 3068, 3073	807250, 271, 572, 657	820926, 2732, 2736
798205, 839	807491, 881, 883	821200, 2884
798216, 1109	807570, 2702	821620, 2760
798302, 1109	808148, 3073	821812, 3066
798509, 426	808149, 3073	822107, 2892
798524, 1291	808402, 2638	822373, 1109, 1151
798844, 1072, 1078	808472, 2707	822424, 1362
798868, 88	808473, 2707	822430, 572, 662
799042, 2704	808614, 301	822485, 2731, 2733, 2737
799218, 2690	808683, 2727	2738
799642, 1023	808842, 2736	822532, 2877
799687, 1825, 2075	809034, 2727	822883, 662
799705, 2954	809035, 2727	823009, 3067
800127, 1023	809371, 2648	823314, 2702
800144, 2761	809450, 1147	823445, 2645
800145, 2761	809935, 3025	823472, 1147
800146, 2761	810063, 1064	823555, 2716
800218, 1112, 1146	811044, 2567	823801, 2566
800291, 2713	811523, 273, 632	824255, 660, 3066
800331, 2731, 2733,	812098, 3006, 3028	824906, 2407, 2412
2737, 2738	812399, 1362	825057, 1291, 1292, 1302
800815, 2695	812582, 2562	825115, 2688
801483, 2528, 2529	812608, 2777	825116, 2688
801485, 2528, 2529	812958, 2945	825168, 2253
801813, 2725	813302, 2406	825268, 2579, 2739
802191, 1064	813647, 429	825808, 203, 204, 657
802620, 869	813618, 2710, 2749	826165, 2525
802754, 296	813878, 72	826166, 2518
802755, 296	814394, 2760	826229, 3009
802792, 2527, 2530	814917, 881	826301, 945
802793, 2527, 2530, 2533	814918, 1005	826351, 3076
802980, 681, 944, 3005	815373, 453	826407, 2405
803161, 2697	815463, 2556	826781, 2587, 2677
803391, 79	815548, 2417	827386, 2714

- 827434, 72, 2631
- 827674, 2977
- 828155, 2625, 2636, 2651
- 828268, 1107, 1196
- 828311, 2741
- 828472, 657
- 829272, 849
- 829273, 849
- 829274, 849
- 829275, 849
- 829276, 849
- 829277, 849
- 829765, 1064, 1088, 1092
- 830044, 2542
- 830493, 2760, 3044, 3082
- 831028, 2533
- 831444, 2702
- 831488, 2552
- 831521, 301
- 842127, 2714
- 842403, 2732, 2733, 2737
- 842605, 2254
- 843063, 2401
- 843065, 2527
- 843587, 2702
- 843634, 313
- 843666, 2527, 2528
- 843936, 311
- 844257, 1006
- 844460, 2554, 2623, 2630
- 844739, 2680, 3077
- 844913, 231, 2496
- 845113, 2659
- 845296, 2168
- 845297, 2168
- 845298, 2168
- 845926, 1064, 1076
- 846034, 1350
- 846069, 295
- 846704, 1711
- 846417, 2731, 2732, 2733
- 2734, 2738
- 846452, 92, 805, 2640
- 3069
- 846620, 89
- 846704, 2977
- 846788, 2648
- 847061, 2731, 2732, 2733
- 2736
- 847277, 869
- 847351, 2609
- 847463, 2254
- 847592, 1347, 1389, 1391
- 847700, 2606, 2609
- 847735, 2714
- 847927, 2731, 2733, 2736
- 848350, 2398, 2991, 3007
- 3029, 3053
- 848607, 2615
- 848750, 2695
- 848758, 2635
- 848968, 2732, 2733, 2735
- 849013, 82
- 849014, 82
- 849336, 2592
- 849450, 2955
- 849534, 2482
- 849825, 74, 87
- 849853, 2883, 2912
- 840497, 2118
- 840611, 74, 87
- 840812, 2592
- 840841, 2603
- 840631, 2759, 2761
- 840932, 2732, 2733, 2736
- 2737
- 841509, 2613
- 841576, 1063, 1064
- 841738, 2390
- 842125, 2625
- 842568, 83
- 842736, 1072
- 843599, 2406
- 844849, 2506
- 844911, 452
- 845160, 3065
- 845378, 332
- 845616, 2499
- 845854, 927
- 846080, 2568, 2760
- 846288, 1102
- 846411, 2731, 2732, 2733
- 2736
- 846541, 60, 1231
- 846879, 2636, 3067
- 847012, 2694
- 847338, 2732, 2733, 2734
- 2736
- 847658, 445
- 847664, 1075
- 847985, 445
- 847987, 2621
- 848117, 2766
- 848288, 1341
- 848301, 2587, 2606
- 848357, 2620
- 848361, 296
- 848612, 927
- 848631, 1239, 1266
- 849018, 2530, 2532
- 849572, 2725
- 849695, 2704
- 849645, 2556
- 849822, 2636
- 849823, 3070
- 849879, 2636, 3067
- 849925, 2960
- 850119, 2960
- 850156, 2731, 2732, 2733
- 2737
- 850266, 2957
- 850267, 2945
- 850268, 2945
- 850325, 2945
- 850392, 848
- 850502, 2945
- 850517, 1218
- 850551, 2713
- 850571, 72, 2631
- 850695, 89, 2623, 2653
- 850780, 2715
- 850820, 1229, 1232, 1295
- 851377, 2725
- 851378, 292, 313
- 851379, 313
- 851380, 313
- 851381, 292, 313
- 851607, 2977
- 851918, 2747
- 852078, 2500
- 852093, 2644
- 852126, 83
- 852144, 2957
- 852390, 1218, 1239, 1240
- 852915, 2763
- 853085, 2945
- 853093, 2643, 2644, 2651
- 853685, 2392, 2563
- 853943, 273, 329
- 853986, 74
- 854374, 149, 3012
- 854886, 2731, 2733, 2734
- 2736
- 854887, 2731, 2732, 2733
- 2734, 2736
- 854928, 986, 989, 992
- 855213, 3067
- 855555, 2731, 2732, 2733
- 2734
- 855556, 2731, 2732, 2733
- 2734, 3030, 3032
- 3059
- 855708, 2606
- 855809, 1882, 2012
- 856048, 1372
- 856857, 85, 90, 92
- 2644
- 856859, 2254
- 857046, 3003
- 857413, 2716
- 857387, 2715
- 857462, 2695
- 857589, 2947
- 857640, 83
- 857900, 3060
- 858079, 2714
- 858411, 660



## United States

858848, 2630, 3076	869176, 2568	876311, 2772
858860, 2579	869307, 2978	876463, 2716
858904, 895, 897, 911	869375, 2482	876532, 2564
859106, 2588	870300, 2733, 2736	876533, 3073
859427, 1218	870508, 2563	876901, 3067
859757, 1372, 1375	870620, 1023	877027, 2984
859759, 1372	870829, 2524	877351, 2877
859789, 2715	871195, 2566	877414, 306
860068, 455	871353, 2560	877446, 881
860320, 2736	871525, 2563	877447, 881
860776, 1882, 2012	871554, 2731, 2732, 2734	877885, 2702
860814, 2704	871750, 2568, 2760	878070, 2723
860968, 1210, 1212, 1239	871790, 2392, 2566	878240, 2568
861177, 1829	871912, 1027	878254, 2727
861427, 2708	871948, 927	878547, 2732, 2733, 2737
861435, 2581, 2707	872097, 611, 662	878569, 1027, 1028
861472, 2891	872314, 2568	879030, 927
862407, 2732, 2733, 2737	872561, 2568	879416, 30, 73
862475, 2714	872822, 1063, 1064, 1081	879871, 1882
863034, 1350	873070, 790, 1291	879981, 2726
863141, 2893	873812, 1033	880037, 850
863793, 3067, 3068, 3073	873891, 881	880247, 314
3074	873943, 1075	880342, 2727
863801, 86	874181, 2756	880432, 2740
863802, 86	874264, 2979	880464, 850
863940, 1341	874265, 2150, 2979	880599, 1293
864123, 2898	874564, 2005	881104, 428
864162, 2515, 2526	874789, 2716	881105, 428
864217, 985, 993	874879, 2614	881365, 2976
864388, 2763	874885, 2910	881366, 2976
864816, 1072	875055, 3004, 3005	881367, 2976
865005, 2760	875062, 2526, 2531	881368, 2976
865168, 295	875163, 2568	881644, 2731, 2732, 2733
865618, 945	875315, 294	2735, 2738
865710, 2733, 2734, 2737	875342, 2407	881827, 2518
865807, 2779	875416, 2567	882114, 2978
866371, 83	875578, 1081	882217, 1081
866426, 2415, 2418	875909, 1223, 1288, 1291	882330, 1210
866635, 1064	875913, 1828	882790, 568
866768, 1732, 2623	875914, 1828	882947, 2392, 2565
866843, 1112, 1124, 1302	875915, 1828	882958, 881
1395	875916, 1828	883091, 2407
866844, 1112, 1124, 1302	875917, 1828	883328, 300
1396	875918, 1828	883442, 2603, 3079
867235, 454	875919, 1828	884035, 1427
867575, 3004	875920, 1828	884298, 73
867623, 2636, 3067	875921, 1828	884456, 2715
867830, 2711	875922, 1828	884475, 3019
867836, 2733, 2737	875923, 1828	884919, 701
868652, 2415	875924, 1828	884920, 701
868445, 2761	875925, 1828	884982, 2899
868638, 1830	875926, 1828	885067, 2730
868637, 1830	875927, 1828	885095, 2419
868638, 1830	875928, 1828	885096, 2419
868760, 1830	876035, 2733, 2738	885151, 2568
868837, 1830	876137, 2532	885183, 2407
868920, 2568	876251, 2568	885328, 1075
869051, 1830	876304, 2493, 2565	885396, 2566
869094, 1111, 1123, 1303	876310, 2530, 2532	885591, 2463, 2478

885891, 1064, 1076	896373, 2716	533958, 2958
886085, 2548	896622, 1930	903859, 297
886673, 2893	896715, 3073, 3080	904060, 1075
886883, 2882, 2894	896895, 2724	904147, 1224, 1232, 1291
886948, 1076	896962, 2527, 2530	904250, 2565
887027, 2955	897188, 2715	904269, 232, 2493, 2613 •
887266, 881, 986	897254, 2732, 2733, 2736	3035, 3054, 3071
887326, 849	897862, 2564	904636, 2555
887454, 2711	898033, 693, 702	904684, 86
888044, 919, 920	898133, 881	905420, 2710
888120, 1271	898144, 2390	906219, 2772
888260, 2624, 2634, 2635	898307, 2769	906574, 1064, 1076
888516, 232, 249, 2637	898346, 704, 848	906682, 899
3035, 3054	898369, 2883, 2912	906883, 1075
889096, 927	898378, 1031, 1034	907332, 670
889097, 927	898390, 1232, 1442	907428, 2531, 2533
889132, 1086, 1088	898942, 2530, 2549	907758, 2565
889431, 869	898943, 2530, 2549	907865, 2565
889455, 2704	899219, 1046	907941, 2519
889709, 2726	899284, 790, 1300	908111, 2702
889861, 3066	899577, 2253	908149, 2982
890143, 2713	899855, 2960	908171, 2531, 2533
890418, 2406	899898, 1223, 1271	908400, 1291
890465, 2524	899899, 1223, 1271	908696, 1218, 1222, 1232
890479, 2566	900204, 2547, 3028	908754, 92
890524, 445	900330, 2702	909257, 89
890696, 2702	900316, 2524	909343, 292, 314
890920, 2723	900471, 693	909457, 2493
891033, 2524, 2530	900500, 1064, 1110, 1151	909546, 2956
891115, 1063, 1064, 1091	900687, 2565	909578, 1291
891116, 1072, 1091	900688, 1232	906219, 2659
891218, 3011, 3018, 3037	900706, 2733, 2735	909288, 2613, 2620
891368, 3082	900744, 28, 1790, 2673	910049, 2565
891420, 1829	2701	910524, 425
891436, 2659, 2772	900758, 2718	910530, 699
891703, 1110	901283, 2526, 2531*2607	910715, 2715
891753, 3004	901457, 2708	910861, 2704
891775, 1110	901589, 1046	910936, 2959
891819, 2665	901708, 2526, 2531	910978, 2527
891896, 3022	901709, 2514, 2526	911408, 855
892301, 2731, 2733, 2737	901895, 2566	911606, 2565
892516, 699, 1000	901915, 2696	911735, 1064, 1070
892702, 2685, 2688	902093, 3012	911753, 1063
892899, 2544, 2660	902109, 2740	911868, 92
893129, 2760	902317, 2716	911906, 2638
893634, 1779	902404, 2566	911907, 2638
893784, 2407	902464, 2976	912063, 2910
893987, 2581	902465, 2976	912310, 1271
894108, 1781, 2753	902607, 698	912340, 303
894464, 1046	902619, 2975	912339, 303
894547, 945 •	902840, 2976	912743, 1029
894792, 1113	902850, 2976	912744, 1029
894799, 1046, 1074	903047, 2527	912812, 3078, 3082
895197, 2737	903160, 2696	914100, 926
895476, 2726	903199, 2732, 2733, 2736	914113, 2952, 2956
895639, 1829	903541, 667	914279, 690
895729, 1396	903679, 293	914300, 1784, 2693
896111, 1090	903778, 2704	914396, 2977
896144, 881	903840, 2173	914813, 915

## United States

916057, 315	927244, 2882	940394, 251, 300
916383, 2713	927342, 1030	940580, 2965
916516, 2682, 2684	927674, 2582	940595, 1090, 1091
917402, 114	927950, 269, 274	940596, 1090, 1110
917627, 2687	927951, 269, 274	940945, 1082
917694, 2743	928009, 2094	941159, 415
917873, 2702	928235, 2606, 2618	941605, 2768
918203, 2716	928247, 295	941641, 2406
918397, 3077	928248, 295	941717, 2702
918925, 424	928249, 295	941768, 916
918997, 209	928476, 681	942207, 308
919143, 2567	928545, 814, 985	942395, 2582, 2624
919759, 2419, 2598	928655, 2708	942609, 2768
919762, 2532	928844, 1291	942700, 2768
919832, 2554	928864, 1303	942808, 2659, 2768
919835, 2702	929651, 2640	942809, 2768
920138, 2917	929660, 2550, 2715	942852, 2659, 2768
920224, 818, 983, 986	929815, 2977	942858, 2768
920610, 720	929861, 456	943658, 335, 3076
920775, 2638	930054, 2528	943661, 699
920828, 3013, 3056	930271, 2407	943685, 3081
921329, 1300	930471, 1111, 1121, 1302	944500, 2977
921944, 2462	930874, 567, 571, 2650	945109, 2977
921975, 849	931335, 2567	945111, 1027
922003, 932	931519, 2392, 2566	945112, 1027
922133, 2759	931608, 291, 297, 308	945394, 291
922295, 2599, 2612, 2615	931629, 3060	945505, 2568
922340, 149, 3017, 3031	931634, 102, 567, 2659	945559, 83, 87, 2631
	931749, 2125, 2144	945917, 1396
	931868, 1091, 1092, 1110	946294, 2390, 2944, 2963
922516, 1110		946745, 2979
922538, 2391, 2526	932304, 2702	946766, 2711
922596, 2692	932318, 2775	947027, 2638
922692, 2759	932647, 2390	947101, 313
922773, 2724	932771, 1213, 1213	947128, 313
922838, 2715	933694, 720	947457, 2809
923009, 3078	933107, 2395	947715, 2648, 2654
923012, 855	933645, 2609	947965, 2877
923019, 2881	934214, 2613, 2650	948158, 870
923088, 273, 292, 2420	934700, 1063, 1064	948372, 695, 700
923227, 5, 27	935603, 2682, 2687	948485, 479
923232, 2418	935675, 2615	948512, 425
923353, 2759	936842, 2568	948513, 425
923589, 2894	937147, 1107, 1110, 1151	948726, 699
923745, 5, 27	937148, 1107, 1110, 1151	948727, 2696
923777, 2635, 3072, 3074	937223, 2715	948790, 2959
923846, 681	937928, 2519, 2529	948814, 2566
923967, 2526, 2530	938008, 2702	948947, 1119
924057, 2759	938128, 290, 305	949134, 2390
924449, 2660, 2769, 2771	938308, 205	949264, 2702
924980, 1063, 1064	938316, 878, 901	949642, 2713
925104, 3079	938715, 2715	949643, 328
925328, 2759	939119, 2731, 2734, 2735	949671, 2768
925389, 2727	939120, 2731, 2734, 2735	950392, 2752
925419, 2955	939350, 2899	950435, 3082
925429, 2564	939394, 310	950703, 695
925751, 1027	939966, 2768	950435, 2646
926413, 849	939980, 2407	951068, 2554
926450, 2714	940216, 2979	951369, 2565
927198, 2607		

951445, 2393, 2943, 2963	962498, 1076, 1081	76977, 2646
951483, 2731, 2732, 2733	962608, 2409	976094, 2588
2734, 2737	962788, 2856	977326, 2689
951497, 2714, 2717	962769, 83, 2631, 2755	977863, 2631, 2653
951582, 2577, 3060	962770, 83, 87, 2631	978391, 2589
951606, 425	2755	978878, 87, 2631, 2653
951756, 2725	962788, 2751, 2755	978883, 3066
952098, 1063, 1064, 1070	962877, 2536, 2734, 3033	979013, 83, 87, 2631
952099, 1063, 1064, 1070	3035, 3036, 3059	979136, 2567
952100, 1063, 1064, 1070	963174, 1388	979247, 2533
952540, 2993	963175, 1388	979416, 2392
952724, 3027, 3029, 2035	961483, 2674, 2675, 2895	979431, 2549
3038, 3043	946524, 2608, 2724	979434, 2629, 3072
952970, 1061	964964, 2552, 2759	979560, 2001
953025, 2181	965273, 88	979714, 2711
953175, 2891	965557, 88	979781, 2607
953319, 78, 104, 3082	965823, 2659, 2773	979906, 3038, 3055
953454, 2731, 2732, 2733	966770, 2702	980294, 77, 86, 90
2734, 3032, 3059	966771, 2732, 2737	980648, 3064, 3071
953621, 2593	966867, 2708	980807, 2693
953677, 149, 150, 3015	967001, 270	981042, 269, 290
3016	967061, 270	981103, 1209, 1212, 1291
953798, 2946	967397, 86	981368, 2893, 2898, 3075
954209, 301	968278, 292	981574, 3038, 3055
954310, 3006	969432, 2569	981591, 2603
954666, 2768	969504, 315	981625, 1061, 1086
954708, 2702	969635, 2408	981880, 1073, 1075, 1081
954984, 74, 76, 92	969636, 2393	981900, 1294
955082, 149, 150, 1090	969868, 1063, 1090	982288, 681, 929
3015, 3016	970029, 125, 201	982311, 929
955689, 2716	970053, 1090	982370, 2587, 2693
956184, 1087	970145, 3003	982379, 299
956320, 2565	970389, 2636, 3069, 3071	982466, 812, 986
956567, 2915	970825, 3002	982524, 2567
956991, 2716	970972, 2899	982631, 2569
957418, 1063, 1064, 1069	971149, 895, 914, 913	982673, 428
957460, 2630, 2639	998, 1114	983139, 86
958339, 2715	971501, 855	983542, 3065
959237, 480	971712, 2711	983543, 3065
959307, 273	972313, 2727	983854, 2423
959563, 687	972464, 2498, 3035	983884, 2567
959692, 2749	972952, 2394, 2488, 3024	984330, 430
960006, 2910	972953, 2393, 2394, 2488	984483, 431
960100, 3077, 3078	972954, 2394	984539, 2646
960251, 2702	974001, 315	984605, 681
960320, 2731, 2733, 2734	974285, 2585	984665, 2603
960437, 2899	974285, 2673	984703, 1292
960702, 1356	974464, 2876	984805, 2588
960791, 88	974900, 2393, 2514, 2958	984886, 2893, 2898, 3075
960927, 3002	2963	984925, 703
960989, 2882	975074, 230	985404, 2566
961241, 3038, 3055	975151, 4003	985405, 2566
961350, 1001	975405, 2579	985406, 2565
961360, 2391, 2537, 2538	975460, 2628	985407, 2564
2675	975656, 475	985496, 2735
961980, 2731, 2732, 2734	975866, 3002	985667, 1030
2737	976175, 1072	985725, 295
962036, 2560	976211, 2957	985726, 295
962493, 1075	976525, 1072	986017, 89

## United States

986038, 2533	994437, 2525, 2528	1003089, 2554
996306, 3067	994497, 452	1003243, 1830
986507, 2702	994503, 2618, 2621	1003279, 855
986531, 2568	994738, 3016, 3017, 3056	1003433, 992
986540, 454	994841, 1870, 2542	1003438, 2402
986541, 454	994842, 2390, 2542	1003568, 2717
986709, 1079	994931, 2611	1003720, 2876
986846, 1271, 1392	995187, 2960	1004287, 2562
987092, 2895	995373, 2960	1004473, 302
997375, 943	995405, 2878	1004509, 929
987408, 919, 920	995510, 2512	1004537, 2618, 2621
987437, 2898	995652, 2628, 2649	1004974, 328
987451, 2739	995852, 92, 2639	1005052, 2983
987629, 568	995998, 2585	1005454, 3026, 3030, 3037
987674, 925	995999, 2585	3042
987692, 2399, 3010, 3030	996011, 925	1005644, 2878
988384, 2689	996032, 919, 920	1005739, 2959
988424, 2636	996101, 2543, 2670, 2674	1005818, 2564
988430, 77	996215, 1064, 1069, 1087	1006142, 1879
988646, 1108, 1119	996225, 273, 279	1006206, 855
988798, 2978	996788, 2599	1006697, 2701
988799, 2948	997064, 297	1006737, 2564
988920, 1086	997144, 301	1006927, 985
988961, 2804	997910, 2563	1007144, 2683
988965, 3025	998007, 2945	1007516, 1119
988981, 3051	998237, 2642, 2643	1007683, 703
988995, 1023	998474, 2678	1007782, 448
989476, 2772	998675, 2715	1007783, 448
989519, 1819, 1827	999003, 681	1007784, 448
989537, 1388	999071, 929	1007785, 448
989651, 2522	999183, 2731, 2733, 2734	1007973, 2685
989801, 1090, 1091, 1110	2737	1008029, 2690
990247, 2877	999236, 149, 3012, 3018	1008129, 2586
990521, 2561	3019	1008319, 1023
990929, 452	999375, 2947	1008332, 2493, 2606
991174, 855	999490, 2543, 3018, 3022	1008333, 2390, 2445, 2486
991205, 2555	3029, 3031, 3036	1008383, 701
991267, 2898, 3075	3043	1008489, 3007
991271, 3081	999491, 2492	1008557, 3007
991356, 855, 881	999587, 881	1008615, 1788
991357, 698, 881	999667, 2523	1008690, 986, 991
991453, 2467	999955, 3035	1008725, 1829, 2962
991560, 475	1000040, 3035	1008847, 1027, 1046, 1084
991874, 2422, 2485	1000162, 2565	1008927, 928
992169, 2732, 2733, 2735	1000388, 2567	1009116, 3051
992391, 1081	1000439, 2702	1009196, 990, 1390, 1422
992743, 2587	1000598, 2688	1009197, 986, 990
993017, 681	1000726, 430	1009559, 1074
993125, 1385	1000732, 693	1009577, 2954
993144, 855	1000827, 83	1009630, 2492, 2700
993331, 3004, 3005	1000966, 2565	1009705, 933
993353, 2977	1001072, 2977	1010042, 2730
993446, 2419, 2421	1001284, 2632	1010122, 305
993626, 2765	1002249, 703	1010221, 1087
993868, 881, 892, 986	1002408, 3038, 3055	1010222, 2713, 3058, 3075
994076, 3065	1002634, 2898, 3075, 3078	1010404, 925
994096, 927	1002824, 1113, 1124, 1132	1010913, 2716
994139, 2566	1203	1011014, 697
994273, 2054	1003051, 1076	1011018, 870

1011181, 2586, 2863	1020424, 2714	1029488, 2717
1011443, 2587	1020593, 2768	1029528, 849, 855
1012368, 1829	1020594, 2768	1029639, 2644
1012387, 1401	1020655, 446	1029737, 2768
1012421, 1225, 1243	1020656, 446	1029848, 294
1012487, 1271	1020737, 2768	1029885, 881
1012887, 1890, 2676	1021234, 702, 714	1029886, 882
1012914, 2613	1021445, 933	1030072, 2610
1013337, 454, 455	1021569, 2583, 2614	1030177, 2402
1013458, 2884	1021712, 2640	1030251, 91
1013460, 926	1021952, 2602	1030311, 154, 3012
1013497, 456	1022012, 1091, 1251	1030334, 2523
1013614, 313, 1046	1022097, 83, 2654	1030364, 2738
1013638, 1113, 1132, 1191	1022248, 2726	1030378, 2561
1013984, 855	1022351, 855	1030508, 1107, 1115
1014211, 2566	1022416, 2558	1030929, 919, 920
1014237, 480	1022493, 1206, 1207, 1239	1031413, 1133
1014311, 456, 480	1289	1031477, 923
1014752, 2567	1022510, 2896	1031581, 923
1014859, 3035	1022617, 2899	1031582, 923
1015155, 3025, 3033, 3034	1023022, 2762	1031616, 232, 2538, 3032
1015156, 3025, 3036, 3038	1023133, 829	3033, 3034, 3035
3045	1023138, 829	3036, 3037, 3038
1015566, 681, 685	1023257, 456, 480	3040, 3053
1015720, 1006B	1023295, 3076	1031811, 2762
1015814, 2958	1023548, 91, 2654	1031837, 2770
1016178, 2637	1023612, 2700	1031864, 881, 892, 986
1016407, 2608, 2620	1023713, 2588	1003
1016445, 2566	1023960, 2587	1031865, 881, 892, 986
1016476, 1110, 1396	1024203, 2690	989
1016526, 919, 920	1024624, 1417	1031971, 2390
1016761, 455, 456	1024798, 1064	1032391, 205
1017023, 273, 1879	1024926, 2565	1032392, 205
1017141, 2564	1024965, 2734	1032440, 205, 3085
1017261, 3003, 3004	1025217, 2583, 2607	1032441, 205
1017286, 2977	1025356, 304	1032442, 205
1017320, 282	1025731, 2708, 3019, 3056	1032443, 205, 209
1017358, 2586	1025962, 687	1032444, 205, 209
1017669, 2393	1026577, 296, 298	1032445, 205
1018040, 1291	1026913, 2528, 2549	1032446, 205
1018132, 2709	1026914, 2549	1032447, 205
1018255, 1063, 1064	1027022, 1064	1032448, 205
1018374, 1291	1027121, 2759	1032449, 205, 209
1018385, 2768	1027122, 2759	1032450, 205, 209
1018402, 1119	1027312, 855	1032641, 2559
1018419, 2500	1027419, 2716	1032657, 1235, 1273, 1427
1018479, 1031	1027466, 2567	1032782, 1006
1018631, 2731, 2732, 2734	1027617, 2391, 2543	1032982, 2410
2737	1027618, 2391, 2543	1032988, 927
1018650, 336, 2629, 2649	1027619, 2538, 3037	1033044, 2768
1018736, 2768	1027680, 2654	1033063, 209
1018802, 926	1027689, 2654	1033126, 698
1018994, 273	1027794, 2768	1033537, 1874
1019002, 926	1028296, 2899	1033841, 3035
1019230, 3004	1028337, 2877	1033842, 926
1019407, 2768	1028516, 857	1034235, 73, 90, 2639
1019829, 2565	1028748, 2753, 3020	1034534, 2699
1019931, 2896	1028880, 1108, 1110	1034574, 1092, 1093
1020117, 2638	1029341, 2649, 3017, 3031	1034585, 2725

## United States

1034761, 2585	1040793, 2947, 2963	1048123, 293
1034819, 2564	1040794, 2947, 2963	1048145, 2610
1035086, 201	1040850, 2768, 2769	1048161, 1033
1035108, 3046, 3051	1040886, 2556	1048247, 1300, 1310
1035302, 453	1041060, 803	1048578, 1817
1035422, 1396	1041113, 3043	1048609, 3004
1035581, 696	1041115, 3032	1048814, 2396
1035620, 2563	1041116, 3042	1048953, 1219, 1221, 1244
1035684, 695	1041117, 3039	1283, 1287
1035727, 923	1041118, 3039, 3042	1049005, 2777
1035732, 696	1041229, 2493	1049201, 91
1035829, 456	1041566, 932	1049466, 2563
1035830, 456	1041587, 3056, 3075	1049467, 2563, 2565
1035831, 456	1041745, 2985	1049658, 2898, 3074
1035832, 456	1041791, 297, 329	1049754, 703, 709
1035833, 456	1042141, 933	1049955, 78
1035834, 456	1042179, 850	1050065, 1793, 3032, 3037
1035835, 456	1042315, 802	1050160, 845, 995
1035836, 456	1042332, 200, 201, 306	1050723, 200, 201, 306
1035837, 456	1042538, 306	2420
1035838, 456	1042723, 918, 923	1050902, 681, 685
1035839, 456	1042746, 930, 933	1051051, 2420
1035840, 456	1043042, 2965	1051166, 3011, 3016
1035841, 456	1043303, 284, 306	1051303, 852, 927
1035842, 456	1043389, 2735	1051317, 2568
1035873, 670	1043600, 2755	1051318, 2563, 2566
1035882, 3072	1043682, 2771	1051319, 2563, 2567
1036282, 2613, 3077	1043798, 855	1051978, 2565
1036416, 2735	1043885, 3004	1052082, 2697
1036473, 1107, 1115	1044169, 2772, 2995	1052446, 2409
1036609, 1107	1044260, 2599	1052675, 268, 272
1036610, 1107	1044322, 2614	1052815, 852, 927
1036730, 2899, 2683, 2751	1044368, 2465*	1053125, 594
1036788, 681	1044369, 1063, 1064	1053719, 424
1036946, 2566	1044431, 92	1053761, 933
1037061, 698	1044446, 2465	1053911, 3065
1037158, 2766, 3071, 3085	1044447, 2465	1053915, 1063
1037185, 200	1044927, 919, 920	1053951, 855, 904
1037261, 897, 943	1045011, 3050	1053952, 855, 904
1037272, 2689	1045502, 2895	1054141, 312
1037685, 2761, 2763	1045723, 1310	1054411, 1859
1037719, 2768	1045731, 3069	1054886, 857
1037977, 881	1045785, 2563	1054901, 849
1038397, 456, 480	1045895, 2548, 2649, 3028	1055003, 850
1038442, 1063, 1064	3046	1055189, 2878
1038475, 2768	1045990, 1793, 3032, 3037	1055295, 850
1038730, 295	1046137, 2735, 2768	1055331, 848
1038799, 2562	1046160, 201, 306, 2420	1055513, 91, 3017
1038925, 855	1046212, 838, 855	1056161, 269
1039464, 1064, 1076, 1086	1046261, 454	1056162, 269
1039782, 3034	1046420, 2768	1056163, 203
1039812, 1063, 1064	1046729, 3015, 3017	1056244, 681, 686, 688
1039858, 2778	1046915, 1086	1056366, 312
1039859, 2778	1046926, 2565, 2566	1056367, 312
1039875, 2497	1047236, 1116	1056446, 78, 2610, 2655
1039941, 297	1047484, 2768	1056447, 78, 2655
1040323, 2391	1047576, 1002, 1411	1056898, 2611
1040439, 919, 920	1047831, 452, 453	1057052, 696, 699, 1402
1040662, 2709	1047971, 2737	1057149, 1239, 1291
		1057151, 297

- 1057211, 2768  
 1057319, 304, 2768  
 1057416, 306  
 1057685, 449  
 1057876, 922  
 1057977, 890  
 1058450, 3066  
 1058891, 2966, 2967  
 1058898, 301  
 1059584, 701  
 1059716, 306, 1087  
 1059869, 1293  
 1059996, 1031  
 1060065, 1396  
 1060509, 920  
 1060640, 919  
 1061316, 300  
 1061346, 2778  
 1061630, 890, 891, 1402  
 1061720, 453  
 1061725, 927  
 1061771, 3008, 3051  
 1061774, 2967  
 1061786, 848  
 1061881, 2659, 2763  
 1061892, 857  
 1061977, 3015  
 1062106, 83, 2631, 2654  
 1062120, 1032  
 1062187, 331  
 1062222, 74, 2654, 2691  
 1062295, 933  
 1062565, 2562  
 1062805, 945  
 1063025, 1307  
 1063428, 307  
 1063469, 2956, 2960  
 1063686, 2556  
 1064260, 72, 2653  
 1065053, 730  
 1065115, 2894  
 1065144, 702  
 1065319, 1401  
 1065495, 2768  
 1065684, 2609, 2614, 2692  
 1065691, 2602  
 1065750, 1063, 1064  
 1066017, 2564  
 1066251, 2567  
 1066272, 698  
 1066474, 2402, 2484  
 1066557, 1386  
 1066720, 2567  
 1066758, 2526, 2527  
 1066785, 77, 2655  
 1067785, 1793, 3032, 3037  
 1067855, 2778  
 1067856, 2778  
 1067974, 1396  
 1068021, 1232, 1265  
 1068084, 306  
 1068092, 268  
 1068219, 687  
 1068966, 855  
 1068967, 855  
 1068968, 855  
 1068969, 855  
 1069029, 313  
 1069030, 313  
 1069031, 313  
 1069033, 2556  
 1069039, 2879  
 1069056, 2568  
 1069057, 2566  
 1069168, 3000  
 1069179, 1080  
 1069445, 3010  
 1069456, 2633  
 1070070, 719  
 1070776, 3082  
 1072289, 2445  
 1072373, 926  
 1072915, 2715  
 1073891, 3068  
 1073941, 2982  
 1074092, 3008  
 1074287, 881, 892, 986  
 990  
 1074305, 2567  
 1074633, 3060  
 1074814, 2485  
 1074881, 3074  
 1075284, 2402  
 1075586, 2607  
 1075722, 730  
 1075856, 313  
 1075857, 313  
 1075916, 308  
 1076078, 315  
 1076197, 2588  
 1076417, 2759  
 1076564, 1072, 1073  
 1076976, 2607  
 1077113, 2768  
 1077239, 2585  
 1077320, 2979  
 1077689, 802  
 1077988, 2468, 2488  
 1078030, 3022  
 1078265, 2735  
 1078316, 929  
 1078423, 681  
 1078937, 1064, 1091, 1203  
 1079291, 1026  
 1079541, 881, 892, 989,  
 992  
 1079635, 2567  
 1079698, 2567  
 1079705, 940  
 1079773, 3027, 3046, 3060  
 1079897, 1071, 1080  
 1080188, 2778  
 1080670, 308  
 1081341, 2879  
 1081949, 2554  
 1082167, 3010  
 1082301, 1113, 1191  
 1082424, 2402  
 1082453, 2394  
 1082490, 2649  
 1082507, 2564  
 1082529, 697  
 1082543, 2468  
 1082573, 2390, 2542  
 1082781, 730  
 1083007, 2564  
 1083102, 297  
 1083213, 297  
 1083232, 944  
 1083248, 1025  
 1083249, 1025  
 1083250, 1025  
 1083251, 1025  
 1083252, 1025  
 1083253, 1025  
 1083255, 1023  
 1083264, 2768  
 1083275, 2694  
 1083585, 855  
 1083589, 3004  
 1084201, 2563  
 1084244, 293  
 1084581, 2391  
 1084702, 2390  
 1084774, 681, 689  
 1085100, 2768  
 1085112, 2770  
 1085805, 2559  
 1086048, 2390  
 1086130, 855  
 1086139, 2770  
 1086381, 2390, 2467, 2468  
 1086428, 2565  
 1087356, 201, 306  
 1087422, 2768  
 1087442, 3065  
 1087700, 2651  
 1087743, 201  
 1087744, 201  
 1087911, 307  
 1087938, 3077  
 1088555, 2670, 2673  
 1088677, 2768  
 1088678, 2768  
 1088874, 2585  
 1089185, 855  
 1089240, 944



**United States**

1089241, 944	1096392, 681, 897, 938,	1103082, 1024
1089304, 1070	3085	1103216, 311
1089482, 3060	1096393, 681, 938, 3085	1103267, 305
1089602, 2879, 2881	1096644, 2590	1103522, 1082, 1107, 1119
1089691, 294	1096965, 2421	1192, 1339
1089910, 2393, 3033, 3034	1097177, 1073, 1074	1104590, 1223, 1239, 1283
1089960, 2603	1097440, 2678, 2747	1104744, 2395
1090074, 3011	1097500, 1074	1104911, 791
1090439, 2768	1097784, 1239	1105060, 2764
1090440, 2768	1097870, 838	1105378, 2527
1090641, 2546	1098139, 681, 944	1105619, 3044
1090642, 2546	1098237, 2945	1105864, 2979
1090643, 2546	1098342, 2682, 2684	1106047, 2488
1090644, 2546	1098561, 306	1106077, 91
1090679, 2897, 3075	1098562, 306	1106138, 2977
1090730, 2766, 3057	1098608, 2768	1106206, 3072
1090874, 939	1098609, 2768	1106343, 2982
1091327, 200	1098610, 2768	1106707, 2398, 2408
1091425, 686	1098728, 2771, 2772	1106994, 273, 618
1091621, 2492	1098776, 2768	1106999, 1262, 1292
1091627, 2659, 2769	1098777, 2768	1107003, 2778
1091628, 2659, 2769	1098858, 2468	1107006, 1073
1091689, 910, 1093	1098882, 3081	1107019, 2994
1091732, 2769	1099276, 453	1107222, 3051
1092167, 923	1099368, 837, 1363	1107703, 2721, 2776
1092221, 299	1099378, 2692	1108329, 2769
1092511, 2768	1099452, 846	1108330, 2769
1092512, 2768	1099530, 1108, 1203	1108331, 2769
1092758, 1871, 2394	1099761, 2543	1108332, 2769
1092881, 2717	1100177, 2563	1108906, 1073
1092883, 2717	1100260, 2485	1109330, 696
1093012, 2007	1100518, 71, 3075	1109512, 3060
1093146, 2634	1101029, 2615	1110417, 2768
1093247, 3016	1101061, 203	1110454, 311, 1064
1093295, 2644	1101071, 453	1110481, 668
1093749, 933, 936	1101424, 925	1110660, 1074
1093819, 928	1101740, 804, 1027	1111284, 2768
1094171, 919, 920	1102052, 2563	1111285, 2768
1094175, 451	1102237, 91, 3069	1111286, 2768
1094182, 855, 896, 910	1102330, 2568	1111287, 2768
1094194, 855	1102347, 2488	1111301, 715
1094314, 2390	1102376, 451	1111502, 1114
1094656, 1027	1102473, 2770	1112297, 2765
1094767, 1027	1102630, 2768	1112424, 1239
1094828, 2768	1102631, 2768	1112546, 1214, 1239
1094830, 3022	1102632, 2768	1112890, 3060
1094861, 1308	1102633, 2768	1113359, 2878
1094976, 927	1102634, 2768	1113376, 850
1095018, 2468, 2488	1102654, 2484	1113437, 1082, 1092, 1110
1095058, 2778	1102655, 2484	1113598, 848
1095270, 2563	1102670, 1111, 1121, 1122	1113599, 848
1095425, 855	1102715, *849	1113964, 2565
1095426, 855	1102911, 804, 1028	1113970, 2566
1095427, 855	1102964, 2963	1113971, 2567
1095830, 295, 2420	1103017, 1122	1113972, 2565
1095999, 2394	1103060, 847	1113973, 2735
1096030, 209	1103061, 847	1114119, 305
1096321, 987	1103062, 847	1114120, 305
1096363, 897	1103081, 1024, 1075	1114734, 2484

1114981, 2771	1126000, 928	1153400, 992
1115003, 923	1126659, 1362	1133305, 335
1115164, 707, 853	1126926, 2778	1133353, 2564
1115192, 987, 994	1127219, 1026, 1028	1133470, 2768
1115239, 1358	1127871, 2497	1133507, 306
1115249, 488	1128154, 309	1133620, 481
1115766, 2768	1128468, 3026	1133633, 2881
1116322, 2476	1128471, 2958	1133680, 2807
1116479, 2891	1128530, 855	1133681, 2847
1116559, 926	1128624, 3073	1133682, 2897
1116614, 2596	1128780, 2996	1133683, 2897
1116627, 3075	1128843, 855	1133926, 2760
1116762, 2896	1128851, 3081, 3082	1140174, 2613, 3059
1117601, 1413	1129440, 456	1140181, 300
1117604, 3069	1129512, 923	1140310, 1027
1117705, 685	1129513, 923	1140351, 746, 992
1118093, 678	1129542, 255, 2410	1140449, 2565
1118005, 2772	1129770, 2567	1140502, 2426
1118238, 2485	1130104, 846, 996	1140510, 855
1118441, 1413	1130192, 284, 312	1140799, 230
1118482, 2566, 2567	1130499, 2567	1141224, 2584, 2607
1118498, 2395, 2501, 2502	1130619, 2608	1141266, 1268
1118628, 855, 857	1130817, 308	1141510, 93
1118642, 2567, 2568	1130830, 76	1141944, 2538
1118952, 1919	1131318, 451	1141948, 829
1119142, 2735	1131860, 2689	1141994, 817
1119155, 86, 2632, 2645	1131929, 2603	1142619, 3079
	1132621, 2282	1143110, 2563
1119158, 687	1132679, 1086, 1251	1143111, 2563
1119159, 687	1132684, 1080	1143130, 2568
1119477, 1310	1133062, 2650	1143132, 849
1119478, 1310	1133083, 2768	1143330, 1876
1119534, 939	1133385, 3026, 3039, 3045	1143366, 829
1119592, 2771	1133494, 312	1143386, 2563
1119781, 2563	1133548, 2649	1143401, 298
1120682, 927	1133636, 1025	1143482, 919
1120730, 2637	1133637, 1025, 1075	1143543, 3068
1120960, 1300, 1411	1133639, 2564	1143569, 3068, 3075
1121090, 297	1133780, 2712	1143587, 572
1121220, 2621	1133840, 989, 992	1143623, 2673
1121226, 1080	1133914, 427	1143714, 309, 2773
1121605, 3064	1134281, 2425	1143878, 2566
1121606, 1026	1134527, 2759	1143893, 2766
1121903, 3068, 3070	1134583, 681, 685	1143979, 3026
1122072, 1870, 2965	1134615, 448	1144073, 415
1122404, 272	1134846, 1025, 1075	1144457, 927
1122554, 2897, 3000	1135026, 2502, 2504, 2582	1144480, 1025, 1075
1122555, 700	2583	1145143, 2882
1123394, 681	1135340, 2778	1145162, 900
1123572, 2569	1135471, 1276	1145166, 995
1123585, 922	1135962, 2768	1145365, 2565
1123763, 849	1136248, 3026, 3039	1145498, 300
1123965, 1072	1136350, 3001	1145579, 1086
1123966, 1072	1136723, 313	1145968, 2881
1124012, 2583, 2615	1137374, 2768	1145980, 2566
1124347, 2995	1138118, 308	1146045, 2768
1124691, 2715	1138146, 2982	1146142, 2564
1125208, 850	1138190, 681, 927	1146189, 151
1125350, 928	1138191, 686	1146190, 335

**United States,**

1146214, 2777	1151928, 2995	1159365, 829
1146290, 2768	1151929, 2995	1159376, 2996
1146300, 2768	1152098, 3001, 3002	1159591, 425
1146336, 2578	1152499, 1023	1159592, 425
1146384, 2735, 2768	1152625, 2593, 2675, 2754	1159865, 939
1146385, 2768	2759	1159989, 922
1146386, 2768	1152875, 1414	1160362, 293, 2768
1146387, 2768	1152930, 855, 857	1160363, 2768
1146388, 2768	1153244, 426	1160365, 293, 2768
1146389, 2768	1153245, 426	1160394, 2564
1146390, 2768	1153402, 3001	1160478, 3082
1146391, 2768	1153574, 2583	1160811, 926
1146413, 2735, 2771	1153596, 3018	1160942, 300
1146414, 2735	1153686, 2511	1161063, 2390, 2538
1146854, 2566	1153883, 293	1161696, 298
1147066, 2686	1153970, 271	1161826, 453
1147245, 308	1154145, 681, 686	1162771, 452
1147264, 2721	1154161, 3022	1162797, 300
1147066, 2401, 2570	1154171, 681	1162812, 2900
1147150, 699	1154172, 681	1163095, 847
1147184, 922	1154289, 989	1163174, 996
1147264, 2775	1154640, 847	1163234, 1075
1147376, 1063, 1088	1154762, 307	1163498, 932
1147848, 2565	1154851, 296	1164084, 2631
1147849, 2563	1155256, 299, 310	1164087, 928, 934
1147850, 2567	1155708, 305	1164647, 2542
1147851, 2565	1155797, 930, 934	1164821, 2694
1147852, 2567	1155840, 920	1165062, 336
1147899, 451	1156081, 2772	1165265, 2900
1148258, 2468	1156108, 926	1165323, 295
1148343, 987	1156119, 2565	1165570, 3065
1148453, 456	1156192, 700	1165689, 299
1148454, 456	1156452, 2768	1166294, 681
1148522, 1350	1156595, 747	1166790, 2548, 2582
1148570, 855	1156801, 456	1166848, 299
1148908, 2584, 2687	1156969, 3054	1167640, 2564
1149216, 430	1156994, 2900	1167641, 2564
1149420, 314	1157253, 939	1168046, 1084
1149443, 2897	1157271, 920	1168164, 2541
1149487, 1852	1157293, 1107, 1111, 1123	1168516, 425
1149585, 1464	1157455, 1119	1168626, 2771
1149653, 847, 935	1157738, 454	1169267, 2641
1149711, 746, 987	1157768, 2586	1169316, 2535
1149765, 1063	1137959, 687	1169322, 2397
1149974, 2747	1158040, 455	1169592, 293
1150337, 681	1158167, 849, 855	1169726, 1027
1150589, 2993	1158181, 989, 992	1169756, 88, 2759
1150642, 2777	1158217, 2391, 2468, 2542	1169783, 2564
1150786, 703, 849	1158265, 2587	1170102, 2762
1151103, 1229	1158364, 305	1170391, 2735
1151113, 2390, 2774	1158365, 305	1170640, 2882
1151234, 1076	1158366, 305	1171321, 2841
1151255, 3023	1158400, 3082	1171725, 2773
1151294, 1222, 1283, 1291	1158830, 2685	1172073, 3080
1151487, 2633	1158899, 923	1172772, 2566
1151490, 299	1158960, 2542, 3041	1172773, 2567
1151537, 829	1158961, 2542, 2670, 3031	1172863, 698
1151597, 2410	1159364, 829	1173236, 3083
1151849, 2768		1173337, 3045, 3049

1173524, 937, 1297	1182604, 2727	1186797, 3039
1173429, 2882	1182605, 2727	1186798, 3039
1173532, 916	1182915, 1027	1186799, 3039
1173566, 1086, 1087, 1099	1182951, 1076	1186800, 3039
1173628, 2567	1183097, 453	1186602, 2388
1173699, 987	1183172, 1080	1186633, 2900
1173748, 302	1183207, 1000, 1390	1186803, 2567
1173931, 3047, 3048	1183358, 2735	1186804, 2567
1174063, 3003, 3004	1183408, 479	1186811, 2762
1174667, 848	1183446, 335	1190160, 3023
1174668, 848	1183885, 847	1190600, 454
1174669, 2982	1184006, 1073	1190806, 2608, 2609
1174944, 848	1184164, 2566, 2567	1190807, 2608, 2609
1175007, 849	1184206, 2624	1190889, 2766
1175113, 453	1184257, 3062	1191216, 426
1175114, 453	1184324, 3082	1191321, 425
1175252, 847	1184649, 1023	1191390, 2769
1175422, 307	1184772, 2921	1191442, 504
1175423, 307	1184839, 703	1191439, 3013
1175424, 307	1184926, 992	1191801, 2675, 3031
1175425, 307	1185028, 3004	1191804, 935
1175426, 307	1185029, 1225, 1283	1192424, 2897
1175728, 3038, 3057	1185071, 3038	1192460, 2604
1175791, 3041	1185432, 2726	1192987, 2110
1175833, 315	1185514, 2584, 3031	1193178, 3032, 3045
1175857, 3076	1185601, 312	1193274, 425
1176056, 2772	1185641, 2567, 2568	1193552, 791, 813
1176150, 2426	1185722, 959	1193796, 847, 900
1176462, 2426	1186052, 2607	1193797, 847, 900
1177635, 2748	1186065, 2655	1193798, 847, 900
1177697, 2894	1186269, 2560	1193799, 847, 900
1177359, 870, 879, 932	1186367, 689	1193800, 847, 900
1177938, 2563	1186372, 1308	1193882, 849
1178440, 916	1186477, 2607	1194095, 2682
1178731, 1788	1186893, 454	1194201, 2774
1178888, 987	1186894, 454	1194561, 2961
1178979, 315	1187229, 2768	1194606, 849
1179357, 2602, 2609, 3061	1187230, 2768	1194926, 989
1179484, 1122	1187231, 2768	1195040, 2543, 3029
1179927, 697	1187232, 2768	1195075, 900, 1392
1179928, 1073	1187392, 466	1195131, 2583, 2608
1179952, 1073	1187869, 2777	2677, 2756
1180061, 982, 997	1187890, 2608	1195673, 2582, 2692
1180255, 2841, 2917	1188014, 2776	1195888, 415
1180704, 3061	1188244, 1830	1196144, 2583
1180840, 922	1188245, 1830	1196329, 2992
1180850, 2978	1188246, 1830	1195227, 3001
1180902, 2670, 3081, 3083	1188356, 2542, 3031	1196639, 847
1181183, 1075	1188376, 37	1196657, 847
1181184, 1075	1188439, 2771	1196708, 299
1181361, 2563	1188651, 923	1196718, 2879
1181553, 303	1188655, 3047	1196799, 3022
1181697, 2410	1188718, 2623, 2628	1197019, 3488
1181754, 2593	1188769, 923	1197167, 988, 989
1181857, 3013	1188770, 923	1197171, 2768
1181858, 3023, 3045	1188771, 923	1197295, 987
1181859, 2543, 3026, 3028	1188775, 3047	1197316, 2778
1181860, 2543, 3026, 3028	1188776, 3047	1197331, 1119, 1129, 1296
1181967, 295	1188777, 3047	1197601, 2769

## United States,

1197983, 303, 2396	1206062, 900, 937	1216266, 2768
1198965, 917, 920	1206063, 900, 937	1216462, 3013
1199395, 3039	1206155, 931	1216515, 2777
1199424, 2900	1206220, 804	1216518, 2777
1199798, 3045	1206456, 2946	1216581, 3039
1199799, 3039	1206777, 296	1216728, 2776
1199800, 3039, 3045	1207177, 431	1217027, 37
1200146, 2602	1207383, 2735	1217028, 37
1200324, 870	1207507, 941	1217115, 2768
1200334, 703, 802	1207706, 939	1217123, 2613, 3079
1200692, 2768	1207707, 939	1217157, 305
1200696, 917	1207708, 939	1217218, 312
1200731, 2773	1207845, 958	1217247, 678, 900, 937
1200774, 3073	1207978, 300	1217388, 801
1200886, 2545, 2548	1208265, 2424, 3061	1217462, 804
1201043, 687	1208664, 2900	1217577, 1357
1201044, 687	1208688, 2698	1217722, 3014
1201181, 2563	1209133, 2622	1217842, 919
1201260, 3014	1209165, 2773	1218137, 2900
1201288, 566	1209333, 2776	1218146, 2778
1201402, 34	1209465, 3066	1218568, 2773
1201535, 271	1209657, 2554	1218616, 2553, 2554
1201607, 705	1210491, 2400	1218638, 296, 306
1201758, 2588	1210682, 2775	1218953, 96
1201955, 1081	1210987, 2684	1218954, 95, 271
1202165, 2900	1211181, 922	1219277, 1300
1202317, 27, 282, 2396	1211227, 2776	1219288, 1111, 1120
1202490, 2725, 2726	1211385, 451	1219559, 2564
1202495, 2578	1211394, 855	1219571, 2394
1202638, 2734	1211450, 2060	1219572, 2394
1202712, 2957	1211588, 2673, 2755, 2756	1219573, 2394
1202766, 2628	1211594, 1370, 1388	1219574, 2394
1202995, 855	1211761, 1831	1219575, 2394
1203229, 2609	1212158, 563, 594	1219721, 2900
1203357, 804	1212199, 1086	1220752, 1265, 1290
1203511, 295	1212359, 3005	1220778, 271
1203548, 2900	1212504, 687	1220947, 2586
1203615, 1207	1212738, 2769	1221058, 308
1203740, 921	1212770, 2254	1221259, 316
1203747, 2723	1213051, 2738	1221457, 2877
1203756, 2391, 3039	1213115, 3080	1221667, 2486
1203856, 305	1213144, 2768	1221704, 2900
1204141, 1111, 1120	1213314, 899	1221735, 804
1204142, 1111, 1120	1213315, 899	1221825, 2893
1204143, 1111, 1120	1213316, 899	1221913, 1236
1204349, 849	1213367, 1870, 2542	1221990, 451
1204608, 3024	1213369, 1870	1222422, 564, 592
1204638, 2486	1213414, 312, 1087	1222593, 933
1204709, 2588	1213415, 312, 1087	1222928, 701
1204851, 2564	1213486, 2695	1222980, 2775
1204933, 3004	1213487, 2695	1223458, 306
1205039, 2900	1213726, 2768	1223399, 2588
1205081, 2769	1213887, 309	1223518, 2563
1205583, 2900	1214414, 2769	1223406, 425, 452
1205610, 932	1214919, 2486	1224070, 2629
1205723, 1283, 1290	1214931, 3068	1224071, 2629
1205724, 1098, 1290	1215072, 2777	1224951, 456
1205822, 2592, 2897, 2900	1215636, 1064	1225270, 2900
1205957, 2767	1216265, 2768	1225748, 2769

1225749, 2769	1236578, 3013	1245884, 2669, 2754
1225750, 2769	1236579, 3013	1246640, 3039
1225825, 309	1236662, 870	1246806, 335
1226178, 307	1236719, 2554	1247270, 2995
1226279, 101, 105	1236853, 689, 917	1247280, 838, 959, 1270
1226333, 297, 308	1236948, 310	1247610, 2608, 3048
1226339, 3026, 3013	1236959, 2774	1248065, 3023
1226340, 3026	1236960, 2774	1248092, 430
1226340, 3013, 3039	1236961, 2774	1248468, 2735
1226341, 2039	1237076, 2486	1248638, 3023
1226342, 3039	1237078, 959	1248864, 2882
1226343, 3039	1237352, 2679	1248933, 2067
1227044, 1111, 1120	1237485, 931	1249287, 303
1227138, 2900	1237551, 2158	1249390, 2745
1228165, 2684	1237579, 2777	1249726, 560
1228225, 2554	1237884, 938, 939	1249728, 1270
1228252, 806	1238279, 1014	1250106, 297
1228428, 2771	1238589, 638	1250282, 2407
1229101, 2629	1239125, 918, 941	1251029, 2726
1229247, 2565, 2566	1239295, 2900	1251237, 3067, 3077
1229316, 1209, 1240	1239516, 681	1251710, 2579
1229422, 273	1240175, 2714	1252013, 959
1229485, 3039	1240236, 1858	1252507, 2777
1229486, 3039	1240344, 2882	1252726, 937
1229487, 3039	1240591, 1388	1252976, 900, 937, 938
1230120, 2899	1240675, 2629	1253055, 2408, 2423
1230162, 730	1240920, 293	1253238, 1063, 1075, 1289
1230163, 730	1241738, 2693, 2773	1253261, 2774
1230343, 932	1241995, 3014	1253262, 2774
1230668, 2563	1242030, 95, 271	1253404, 2774
1230829, 2771	1242264, 701, 942	1253534, 701, 994
1230830, 2771	1242355, 800	1253956, 2587
1230899, 2997	1242491, 2593	1254147, 1858
1231141, 2583	1242592, 2776	1254970, 2539
1231153, 307	1242593, 2776	1254992, 1069
1231172, 2624, 2639	1242622, 2608	1255257, 2897
1231222, 2377	1242783, 3014, 3023, 3045	1255288, 2896
1231351, 1848, 1870	1242953, 703	1255338, 2897
1232109, 1388	1243489, 2622	1255474, 800
1232839, 2158	1243524, 687	1255500, 2768
1233190, 3023	1244107, 3039	1255615, 3023
1233298, 2768	1244108, 3039	1255616, 3023
1233333, 2486, 2488	1244116, 300	1255617, 3023
1233374, 2537, 2675, 3020	1244347, 3039	1255618, 3023
1233564, 938	1244348, 3039	1256240, 2615
1233626, 1382	1244349, 3039	1256273, 900, 942
1233627, 1112	1244463, 70, 78	1256875, 898, 936
1234156, 2390	1244525, 299	1256935, 927
1234450, 2735	1244567, 2608	1256981, 2806
1234720, 235	1244676, 2718	1257665, 2608
1234921, 2390, 2502, 2582	1244901, 2995	1257290, 299
1235043, 2606	1244902, 2995	1257756, 2607, 2608
1235325, 2698	1245363, 2542	1257785, 2607
1235399, 3023	1245476, 3039	1257894, 1357
1235426, 3004	1245690, 2622	1257895, 1357
1235507, 2777	1245975, 2669, 2754	1258568, 297
1235721, 2565, 2567	1245976, 2602, 2669	1258747, 933, 934
1236002, 426	1245977, 2754	1258895, 800
1236460, 2779	1245983, 2669, 2754	1258913, 3012

## United States

- 1259277, 2409  
 1259347, 2769  
 1259472, 2768  
 1259473, 2768  
 1260492, 1086, 1094  
 1260493, 1092, 1094  
 1260508, 3068, 3075  
 1260621, 3023  
 1260622, 3023  
 1260681, 1088  
 1260777, 2500  
 1261005, 2553  
 1261122, 2586  
 1261328, 205, 660  
 1261344, 2997  
 1261526, 919, 923  
 1261615, 2776  
 1261747, 2891  
 1261748, 2891  
 1261811, 2390, 2468  
 1261900, 911  
 1262132, 2608  
 1262133, 2608  
 1262267, 2598  
 1262268, 2598  
 1262295, 1028, 1086  
 1262448, 2148  
 1263031, 2769  
 1263119, 3014  
 1263174, 2608  
 1263186, 2615  
 1263281, 2764, 2821  
 1263533, 687, 848  
 1263685, 590  
 1263813, 2592  
 1263906, 3023  
 1264182, 1390  
 1264479, 2553  
 1264509, 1390  
 1264512, 1287  
 1264979, 2589  
 1265082, 223  
 1265216, 3013  
 1265217, 3039, 3045  
 1265892, 1086  
 1265893, 1086  
 1265975, 1836  
 1266073, 2591, 2468, 2493, 2698  
 1266080, 3061  
 1266657, 2424  
 1266717, 688, 709  
 1266766, 3075  
 1266957, 298  
 1267012, 1217, 1283  
 1267081, 2426  
 1267445, 2587  
 1267785, 2608  
 1268193, 303  
 1268240, 934  
 1268774, 302  
 1269292, 2774, 2779  
 1269339, 2607, 2608  
 1269340, 660, 2655  
 1269350, 303  
 1269627, 2774  
 1270055, 2608  
 1270392, 3023  
 1270393, 2390  
 1270394, 3031  
 1270395, 3031  
 1270396, 3031  
 1270397, 3031  
 1270989, 901, 910  
 1270997, 1108  
 1271071, 2409  
 1271349, 990  
 1271392, 2778  
 1271393, 2778  
 1271899, 1075  
 1272181, 687  
 1273370, 1025  
 1273392, 205, 310  
 1273568, 2304  
 1273690, 926  
 1273772, 916  
 1273928, 2900  
 1273954, 2777  
 1273967, 2778  
 1273991, 893, 990  
 1274169, 3005  
 1274411, 2772  
 1274430, 2566  
 1274797, 923, 1006  
 1275063, 2579  
 1275308, 2551, 2669  
 1275324, 2551  
 1275535, 933  
 1275779, 3080  
 1275884, 3012  
 1276113, 2602  
 1276377, 1375  
 1276643, 2410  
 1277043, 2966  
 1277149, 3061  
 1277528, 2608  
 1277737, 209  
 1277896, 1219, 1222, 1283  
 1277904, 2771  
 1277922, 1352  
 1278044, 930  
 1278162, 2897  
 1278198, 2469  
 1278308, 1131  
 1278667, 2882  
 1278668, 2882  
 1278885, 3013  
 1279119, 1207  
 1279200, 3065  
 1279242, 2602  
 1279328, 3080  
 1279329, 657, 3080  
 1279604, 302, 660  
 1279838, 807  
 1279888, 2568  
 1280162, 2564  
 1280278, 2546, 2959  
 1280279, 2546, 2959  
 1280338, 3070  
 1280399, 2493  
 1280580, 2742  
 1280861, 2669  
 1280862, 2669  
 1280974, 3013, 3014, 3048  
 1280975, 3013, 3014  
 1280981, 2064  
 1281080, 38  
 1281156, 2563  
 1281363, 926, 933  
 1281371, 3050  
 1281714, 2880  
 1281841, 2900  
 1282145, 960  
 1282381, 926, 933  
 1282395, 926, 926  
 1282465, 926  
 1282625, 2979  
 1282635, 285  
 1282865, 660  
 1283087, 2896  
 1283112, 694, 701, 715  
 1283113, 273, 289, 504  
 1283114, 273, 289  
 1283115, 3001  
 1283183, 2391, 2401  
 1283598, 988, 989  
 1283706, 2771  
 1284166, 1287  
 1284175, 1396  
 1284295, 2771  
 1284296, 2771  
 1284297, 2771  
 1284298, 2771  
 1284363, 2773  
 1284432, 2775  
 1284644, 2771  
 1284739, 205, 660, 2425  
 1284740, 205, 660, 2425  
 1285247, 2551  
 1285358, 1023, 1024  
 1286372, 2774  
 1285463, 2513  
 1285537, 751, 956  
 1285824, 930  
 1285856, 1292  
 1286025, 3021  
 1286043, 2774

- 1286080, 1381  
 1286172, 3008, 3013, 3014  
 1286188, 1381  
 1286255, 2996  
 1286256, 2996  
 1286502, 293  
 1286838, 900  
 1286839, 900, 925  
 1287289, 2772  
 1287387, 2602  
 1287472, 688, 926  
 1287807, 900  
 1287808, 900  
 1287878, 1023  
 1287879, 1023  
 1287939, 1309  
 1287995, 955  
 1288413, 955  
 1288429, 197  
 1288754, 900  
 1288755, 898  
 1288756, 898, 900  
 1289150, 2148  
 1289117, 1076  
 1289196, 688, 847  
 1289783, 1076  
 1289984, 1396  
 1290584, 849  
 1290794, 2879  
 1290870, 2393  
 1291025, 2963, 2997  
 1291180, 2608  
 1291258, 2917, 2948  
 1291306, 1121  
 1291909, 694  
 1292019, 2552  
 1292098, 1133  
 1292387, 933  
 1292535, 2777  
 1292544, 3068  
 1292580, 725  
 1292676, 2414  
 1292715, 934  
 1292743, 2538  
 1292744, 2538  
 1292814, 694, 899  
 1292819, 2537, 2678  
 1292948, 837, 988, 1426  
 1293029, 807  
 1293172, 2397  
 1293220, 807  
 1293515, 2558  
 1293902, 1023  
 1294066, 2554  
 1294355, 2739  
 1294525, 1392  
 1294827, 1392  
 1295078, 513, 570, 648  
 1295089, 2122  
 1295148, 2699  
 1295230, 2777  
 1295241, 2651, 3061  
 1295262, 933  
 1295293, 934  
 1295339, 3023  
 1295356, 2679  
 1295353, 3045  
 1295635, 688  
 1296194, 694  
 1296280, 2002  
 1296820, 899, 935  
 1296847, 3013, 3019  
 1296992, 899  
 1297028, 302  
 1297246, 935  
 1298199, 3048  
 1298344, 798  
 1298356, 3002  
 1298363, 847, 935  
 1298410, 2727  
 1298476, 273  
 1298477, 273  
 1298478, 273  
 1298479, 273, 504, 2396  
 1298480, 273, 504  
 1298481, 273, 504  
 1298594, 302, 2396  
 1298816, 2777  
 1299108, 2598  
 1299597, 300  
 1299644, 1401  
 1300570, 2686  
 1300610, 2882  
 1300656, 2900  
 1301105, 1852  
 1301187, 2608  
 1301372, 1091  
 1301409, 2158  
 1301508, 1392  
 1301652, 106  
 1301955, 3049  
 1302011, 2408  
 1302064, 3049  
 1302065, 3049  
 1302202, 2546, 2959  
 1302455, 1811, 1878  
 1302583, 2409  
 1302905, 2564  
 1303115, 2546, 2960  
 1303176, 273  
 1303177, 273  
 1303301, 2651  
 1303302, 2651  
 1303314, 297  
 1303321, 297, 2410  
 1303349, 1076  
 1303506, 2897  
 1303563, 3026, 3029  
 1308435, 2881  
 1308701, 1030  
 1308836, 2897  
 1308837, 2897  
 1304027, 688  
 1304707, 899  
 1304796, 688  
 1304918, 2559  
 1304932, 688  
 1304989, 3002  
 1305195, 2902  
 1305291, 428, 446  
 1305414, 936  
 1305518, 662  
 1305621, 2602  
 1305790, 2599, 2608, 2615  
 1305845, 1836  
 1305846, 1, 84, 1836  
 1305916, 1828, 1836  
 1305962, 2881  
 1306221, 2567  
 1306440, 2546  
 1306681, 2468  
 1306687, 2423  
 1306862, 900, 936  
 1306895, 1859  
 1306904, 2882  
 1306963, 3002  
 1306964, 3002  
 1307034, 2955  
 1307184, 2423  
 1307362, 849  
 1307635, 751  
 1307739, 899  
 1307766, 2957, 2961  
 1308080, 935  
 1308173, 2996  
 1308231, 2608  
 1308242, 2944  
 1308343, 2944, 2977  
 1308344, 2944  
 1308346, 2944  
 1308347, 2944  
 1308398, 2513  
 1308538, 2881  
 1308760, 3023  
 1308803, 3022  
 1308885, 933  
 1309267, 303  
 1309553, 2967  
 1309589, 2553  
 1309681, 1783, 2004  
 1309622, 898  
 1309863, 273, 2621  
 1309980, 2540, 3032  
 1309981, 2536, 2540, 2584  
 1310087, 2776  
 1310088, 2776  
 1310291, 2776



United States		
1310478,	685, 849, 896	1313661, 2535, 2542
1310479,	896	1313876, 1890
1310480,	694	1313884, 934
1310489,	2546	1313885, 934
1310509,	273, 2635	1313886, 898, 934
1310694,	321	1314082, 2426
1310713,	301	1314210, 1203
1310743,	2905	1314231, 688, 848
1310841,	3048, 3049	1314485, 987
1310848,	2966	1314538, 2553
1310969,	1836	1314634, 1029
1310984,	2995	1314802, 998
1311017,	1444	1314856, 1013
1311051,	747	1314952, 1120
1311158,	3001	1315183, 1088, 1089
1311215,	275	1315189, 1088
1311216,	275	1315216, 3048
1311217,	275	1315229, 3023
1311218,	275	1315241, 751, 988
1311219,	275	1315354, 712
1311220,	275	1315303, 95, 660
1311221,	275	1315480, 3045, 3048
1311222,	275	1315496, 1030
1311231,	935	1315525, 2396
1311232,	935	1315532, 899
1311251,	2424	1315534, 900, 946
1311421,	2424	1315542, 3024
1311568,	935	1315543, 2995, 2997
1311594,	694	1315544, 2396
1311595,	295	1315545, 3024
1311824,	2425, 2426	1315546, 2997
1311909,	2966	1315547, 3024
1311910,	2966	1315585, 2397
1312093,	2768	1315674, 935
1312116,	934	1315678, 935
1312118,	750, 829	1315700, 2558
1312156,	2964	1315701, 2558
1312186,	2543	1315811, 806
1312293,	2423	1315834, 1229
1312348,	513	1315940, 1061
1312463,	2966	1316311, 3045
1312475,	2391	1316360, 2977
1312534,	898	1316445, 849
1312741,	1214	1316782, 3049
1312742,	1214	1316783, 2608, 3049
1312758,	2602	1316784, 3049
1312782,	807	1316854, 2550, 2650
1312783,	807	1316913, 2655
1312784,	807	1316950, 893, 896
1312842,	934	1316958, 228, 234
1313192,	808	1317276, 3026
1313312,	3005	1317306, 86, 660
1313313,	935	1317625, 1023, 1033
1313314,	1006A	1317648, 3060
1313315,	1006A	1317688, 1094
1313316,	1006A	1317705, 849
1313370,	1033	1317721, 3045
1313459,	2943, 2966	1317756, 934
1313650,	239, 1876	1317950, 2598
		1318015, 1018, 1033
		1318074, 3023
		1318106, 484
		1318187, 2585
		1318461, 2536
		1318929, 685
		1318936, 946
		1319229, 3032, 3039, 3045
		1319365, 2994, 2995
		1319586, 1402, 1517
		1319663, 946
		1319843, 921
		1320043, 307, 2425
		1320080, 743
		1320192, 685
		1320290, 3049
		1320458, 2402
		1320508, 2551
		1320719, 484
		1321210, 1392
		1321376, 942
		1321459, 921
		1321611, 2446, 2505
		1321633, 2395, 2504
		1321634, 2395, 2504
		1321892, 685, 894
		1322026, 921
		1322195, 920
		1322251, 896
		1322291, 896, 936
		1322631, 2683
		1322786, 2608
		1323284, 2773
		1323540, 2425
		1323624, 2505
		1323792, 1780
		1323847, 1392
		1323864, 961
		1324119, 920
		1324140, 2535
		1324154, 2615
		1324222, 513
		1324255, 843, 986, 1004
		1324350, 2900
		1324649, 2779
		1324744, 2063
		1324774, errata
		1325605, 808
		1325618, 2697
		1325711, 1300
		1325712, 1300
		1325931, 3008
		1326040, 3001
		1326045, 920, 2551
		1326248, 2535
		1326267, 750, 829
		1326310, 921
		1326322, 920
		1326432, 2553
		1326579, 2778

1327020, 916, 1006	1332860, 2770	1341115, 1400
1327197, 2618, 2621	1333404, 1006 A	1341207, 2956
1327332, 2778	1333701, 2957	1341250, 664
1327394, 513, 662	1334303, 1826	1341462, 1401
1327933, 3080	1334500, 1005	1341710, 2492
1328080, 2567	1334360, 2554	1341734, 1400
1328082, 896, 1006.A	1334655, 2900	1341740, 2735
1328258, 2383	1335161, 1401	1341745, 2505, 2638
1328552, 1402	1335257, 1399	1342024, 1401
1328575, 921	1335271, 1400	1342067, 2779
1329211, 1828	1335891, 1006.A	1342267, 2578, 2684
1329212, 1828	1336463, 2957	1342268, 2578, 2684
1329214, 2397	1337106, 1005, 1006	1342326, 2735
1329353, 1849	1337253, 2997	1342601, 3032, 3049
1329386, 1788	1337561, 1400	1342602, 3032
1329397, 1006.A	1337750, 1006.B	1342603, 3032, 3049
1329525, 2982	1337802, 2602	1342767, 2695
1329583, 2549	1337903, 1006.A	1342834, 1006
1329610, 1890	1338346, 2874	1343063, 1829
1329652, 1006.B	1338349, 2874	1343069, 1829
1329824, 662	1338417, 1004	1343135, 3028, 3049
1330421, 2579, 2618	1338418, 1402, 1518	1343317, 1829
1330444, 2776	1338648, 2642	1343387, 2560
1330632, 305	1338661, 3013	1343575, 2775
1331104, 1004	1338691, 2546, 2960	1343715, 2997
1331105, 709, 1104	1338698, 1399	1347071, 2533
1331127, 2779	1338709, 1399	1347158, 1005
1331645, 1401	1338979, 3001	1347159, 1005
1331646, 1401	1339134, 2776	1348736, 1402
1331742, 1006.A	1339494, 1005	1348741, 2546
1331784, 1006.A	1339489, 664	1348983, 1931
1332100, 1006	1339552, 2434, 2675	1353384, 3039
1332195, 813	1339728, 3028	1353385, 3039
1332349, 2682	1339835, 2701	1354401, 1931
1332419, 1006.A	1340044, 2651	1354640, 1931
1332460, 946, 1006	1340290, 1402	1357876, 1931
1332537, 1401	1340600, 2569	
1332542, 1401	1340649, 664	
1332581, 1402	1341114, 1400	

VICTORIA

7278, 77



# TECHNOLOGY OF CELLULOSE ESTERS

## INDEX OF NAMES

Compiled by  
MISS NINA LOWRICE

In the alphabetical index of the 43740 citations of 2542 separate names contained herein, strict alphabetical arrangement has been aimed at, remembering that a vowel with two dots above, is indexed as having the letter "e" following, a indexed as ac, etc. Great care has been taken to obtain where possible the initial of the surname. This was made necessary by the fact that of some identical names of investigators recorded herein, there are over thirty different surnames and name combinations. The separate names and number of citations under each as recorded in this index is:

A, 692 names, 1061 citations thereon; B, 2392 and 3428; C, 1370 and 2252; D, 1239 and 1653; E, 198 and 781; F, 976 and 1504; G, 1208 and 1888; H, 1764 and 2286; I, 1116 and 1442; J, 419 and 510; K, 1108 and 1578; L, 1346 and 2024; M, 1822 and 2485; N, 510 and 899; O, 280 and 407; P, 1241 and 1791; Q, 28 and 45; R, 1145 and 1352; S, 2549 and 3742; T, 889 and 1089; U, 106 and 115; V, 115 and 736; W, 1228 and 1706; X, 1 and 1; Y, 30 and 58; Z, 174 and 230.

Anon. 242, 304, 450, 460, 466, 665, 687, 724, 725, 801, 850, 851, 852, 869, 960, 1001, 1010, 1020, 1024, 1049, 1073, 1213, 1214, 1225, 1234, 1266, 1276, 1335, 1365, 1427, 1918, 1924, 1963, 2100, 2192, 2511, 2570, 2627, 2651, 2652, 2664, 2699, 2758, 2826, 2827, 2828, 2832, 2835, 2836, 2847, 2851, 2869, 2875, 2922, 2923, 2924, 2926, 2928, 2938, 2969, 2970, 2974, 2983, 2987, 2996, 3005, 3044, 3071.  
A., 2888  
Aarland, 2852, 2853, 2869  
Aarland, G., 1025  
Aarland, W., 2875, 2876  
Abate, F., 2600  
Abadie, E., see E. Ador  
Abbot, 2945  
Abbot, H., 1631, 2575  
Abbott, H., and W. Garrison, 2906  
Abbott, J., 934  
Abbott, W., 2615  
Abderhalden, E., W. Weichardt, H. Dean, P. Hirsch, I. Schuler, and G. Brossa, 2422  
Abderhalden, E., and G. Zempelen, 326  
Abegg, 2496  
Abegg, R., see P. Muller  
Abegg, R., 2433, 2458, 2460, 2491, 2497, 2500, 2504, 2507, 2508, 2509  
Abegg, R., and W. Seitz, 2404, 2434, 2442, 2458

- Abeilhou, J., 2600.  
 Abeille, 2786.  
 Abel, 622, 1570, 1622, 1680, 1802, 1831, 2056, 2057, 2077, 2324, 2326, 2334, 2341, 2342, 2343, 2345, 2346, 2347, 2348, 2349, 2353, 2354, 2925.  
 Abel and Guttmann, 1662.  
 Abel, A., 2682.  
 Abel, F., *see* A. Nobel.  
 Abel, F., 1595, 1599, 1604, 1605, 1607, 1610, 1611, 1614, 1615, 1616, 1637, 1645, 1701, 1702, 1703, 1704, 1934, 1940, 1941, 1946, 2083, 2095, 2162, 2164, 2321, 2324, 2368, 2927, 2945, 2971.  
 Abel, F., and E. Brown, 1606, 1809, 2076.  
 Abel, F., and J. Dewar, 1637, 2949.  
 Abel, J., 2767.  
 Abeles, M., 418.  
 Abelli, M., *see* O. Guttmann.  
 Abelli, M., 1785, 2960.  
 Aberg, *see* Kev-Aberg.  
 Aberg, A., 293.  
 Aberson, J., 1665.  
 Abesser, O., 457.  
 Able, T., 2850, 2918.  
 Abney, 2805, 2824.  
 Abney, W., 2814, 2817, 2825, 2826, 2828, 2833, 2834, 2836, 2840, 2845, 2846, 2847, 2853, 2865, 2869, 2874, 2912, 2915.  
 Abom, J., 293.  
 Aboulenc, J., *see* J. Senderens.  
 Aboulenc, J., 3034.  
 Abraham, F., 304.  
 Abraham, G., 2680.  
 Abraham, K., 1249.  
 Abraham, L., 290.  
 Abramski, A., 1098.  
 Abrey, R., 2700.  
 Abt, C., 2857.  
 Aby, F., 2781.  
 Accrington, 1437.  
 Accrington Brick and Tile Co., 1269.  
 Accrington Tile Co., 1281.  
 A Cellulosepatenter, *see also* Aktieselskabbet Cellulosepatenter.  
 Ach, F., 2385.  
 Ach, L., 2530, 2670, 2674.  
 Achard, J., and C. Gonon, 2628.  
 Achenbach, H., 304, 1075, 1087.  
 Acker, A., and Nitrogen Co., 852.  
 Acker, C., 685, 926, 927, 3022.  
 Ackerson, J., 1391.  
 Ackland, 2831.  
 Ackland, W., 2801, 2804, 2864.  
 Ackworth, J., *see also* J. Acworth.  
 Ackworth, J., 714.  
 Ackworth, J., and H. Armstrong, 953.  
 Acme Laboratories, 2424.  
 Acqua, C., 389.  
 Acree, S., 345.  
 Acree, S., and J. Hinkins, 183.  
 Acton, A., *see* W. Cohoe.  
 Acton, E., 399.  
 Acworth, J., *see also* J. Ackworth.  
 Acworth, J., 2890.  
 A. D., 945.  
 Adair, A., *see* A. Micheal.  
 Adam, 2747.  
 Adam, F., 2458, 2481.  
 Adam, M., 504.  
 Adam, M., 268, 665, 897.  
 Adam-Solomon, 2818, 2819.  
 Adams, *see* Blair.  
 Adams, *see* Goold.  
 Adams, *see* H. Goold-Adams.  
 Adams & Elting Co., 2565, 2567.  
 Adams and Wise, 2874.  
 Adams, A., 2424.  
 Adams, B., 2712.  
 Adams, E., *see* G. Lewis.  
 Adams, G., 2711.  
 Adams, H., J. Partington and E. Rideal, 916.  
 Adams, J., 2860.  
 Adams, R., 736.  
 Adams, R., and C. Beebe, 665, 933.  
 Adams, R., O. Kamm and C. Marvel, 2468.  
 Adams, R., and C. Marvel, 2446.  
 Adafis, T., 1584.  
 Adams, W., 2609, 2749, 2860.  
 Adams, W., and H. McKay, 2609, 2620.  
 Adams-Randall, C., 2734.  
 Adamson, G., 960, 1231.  
 Adamson, R., 1927.  
 Adamson, W., 391.  
 Adan, R., 2570.  
 Adda, J., 2897.  
 Adde, S., 2947, 2955, 2964, 2967.  
 Addenbrooke, G., 2757.  
 Addie, J., 1070, 1075.  
 Adel, K., 3061.  
 Adency, W., and H. Becker, 688.  
 Aderholdt, W., 232.  
 Adhikary, B., 665, 694.  
 Agie, R., 1100.  
 Adkins, L., 2559, 2581.  
 Adkins, W., *see* T. Emery.  
 Adler, J., 2401, 2579, 2686.  
 Adler, P., 2992.  
 Adler, R., 88, 178, 504, 2024, 2626, 2759.  
 Adlung, M., 462.

- Administration of the Mines of Buchweiler, 2488.  
*Administration of the Mines of Buchweiler*, see *Administration der Minen von Buchweiler, Akt. Ges.*  
*Administration der Minen von Buchweiler Akt. Ges.*, see *A. Paira*.  
 Adolff, E., 2628  
 Adolph, G., see *A. Pietzsch*.  
 Adom, M., 2734.  
 Ador, E., see *A. Sauer*.  
 Ador, I., and E. Abbadie, 1011.  
 Adouin, M., and E. Moulouze, 1219  
 Adrian, 2786  
 Adrianowsky, A., 1057.  
 Aengstroem, A., 665  
 Aeolian Co., 2734  
 Aeolson, 1056  
 Aeschbach, A., 2976  
 Affelhof, W., 2482  
 Afzenzer-Graphit und Talksteingewerkschaft, 293  
 Agnads, see *Bayard*  
 Ago Lederkitt Industrie Ges., 2618, 2691  
 Agricultural Corp., 1006A.  
 Agricultural Research Corporation, 724  
 Aguilar, S., 2621  
 Ahlfors, E., and H. Helin, 293.  
 Ahlgren, J., 2700  
 Ahlin, A., 293  
 Ahnert, C., see *E. Riboud*.  
 Ahnert, C., 230  
 Ahrens, C., see *M. Dennstedt*  
 Ahrens, F., 102, 104, 290, 304, 335, 1011.  
 Ahrlé, H., see *F. Golby*.  
 Ahrlé, H., see *J. Rowra*.  
 Aichburg, F., zu, 2484, 2764.  
 Aignan, A., and E. Dugas, 2460.  
 Aigner, 2834.  
 Aircraft Fireproofing Corporation and P. Bradley, 3047.  
 Air Liquide, see *L'Air, Liquid Societe Anonyme pour l'Exploitation des Procédes Georges Claude*  
 Air Reduction Co., 894.  
 Aitchison, L., 1322.  
 Aitken and Cooper, 2870.  
 Aitken, J., 2592.  
 Aitkin, 2903. •  
 Aitkin, H., 1011.  
 Akers, H., see *A. Bonnington*.  
 Akers, H., 724.  
 Akers-Douglas, A., 2968, 2970, 2973. •  
 Akin, N., 1070.  
 Aktiebolaget "Astra," 3018.  
 Aktiebolaget Celjuloosa, 272.  
 Aktiebolaget Ethyl, see *G. Ekström*.  
 Aktiebolaget Ethyl, 200, 213, 304, 664.  
 Aktiebolaget Ethyl and G. Ekström, 304.  
 Aktiebolaget Kolloid, 1026  
 Aktiebolaget Kvalveindustri, 849  
 Aktiebolaget Nitrogenium, see *O. Carlsson*  
 Aktiebolaget Nitrogenium, 665, 920, 928, 933  
 Aktiebol. Swedish Nitric Syndikate, 985, 986, 992, 1388  
 Aktien Gesellschaft der Chem. Produkten-Fab. Pommernsdorf and G. Schuler, 986  
 Aktienges. Dynamit Nobel, see *Dynamit Aktien Gesellschaft Nobel*  
 Aktien Gesellschaft Dynamit Nobel, 791, 1296  
 Aktien Gesellschaft für Anilin Fabrikation, 1313, 1784, 1909, 2387, 2444, 2466, 2493, 2523, 2528, 2530, 2538, 2540, 2541, 2567, 2576, 2578, 2584, 2614, 2648, 2682, 2748, 2767, 2863, 2869, 2876, 2892, 2897, 2899, 2997, 3000, 3007, 3010, 3011, 3013, 3014, 3016, 3017, 3020, 3055, 3057, 3059, 3060  
 Aktien Gesellschaft f. Bergbau, Blei u. Zink Fabrikation zu Stollberg, 1028, 1073, 1081, 1282  
 Aktien Gesellschaft für Bergbau und Eisenhüttenbetrieb, 1368  
 Aktien Gesellschaft für Chemische Industrie, 2759  
 Aktien Gesellschaft f. Chemische Industrie and F. Wolf, 1031  
 Aktien Gesellschaft Papier Fabrikation, see *E. Friedmann*.  
 Aktien Gesellschaft Rother Meer, 232  
 Aktien Gesellschaft f. Russfabrikation, see *A. Wegelin*.  
 Aktien Gesellschaft Siegener Dynamit-fabrik, 1931  
 Aktien Gesellschaft für Stickstoff-dünger, see *C. Kraus*  
 Aktien Gesellschaft f. Stickstoffdünger, see *C. Schück*  
 Aktien Gesellschaft für Stickstoff-dünger, 852, 927, 932, 1006  
 Aktien Gesellschaft f. Uebertrocknung, 2992.  
 Aktien Gesellschaft f. Zellstoff-und Papierfabr., 293.  
 Aktien Gesellschaft für Zinkindustrie, 1107.  
 Aktienges. für Zinkindustrie vorm. Grillo u. Schröder, 1100, 1103,

- 1163  
**Aktien Gesellschaft f Zinkindustrie**  
 vorm W. Grillo and W. Schefczik,  
 1073, 1078  
**Aktien Gesellschaft Lointier**, 2633  
*Aktien Gesellschaft Maschinenpapier*  
*fabrikation*, see *E. Opfermann*  
**Aktien Gesellschaft Nobel**, see *Dynamit*  
*Aktien Gesellschaft Nobel*  
**Aktieselskabet** Cellulosepatenter,  
 664  
**Aktieselskabet Sulfitspirit**, 301  
**Aktsehounin**, J., 293, 501  
**Akyroyd**, H., and P. Kraus, 231,  
 3078  
**Alary**, F., and A. Choisy, 2588  
**Alary-Ruelle**, F., and A. Choisy,  
 2578  
**Albany Billiard Ball Co.**, 2665  
**Albenus**, H., see *G. Lange*  
**Alber**, W., 2691  
**Albersheim**, M., 301  
**Albert**, 2836, 2906  
**Albert**, A., 919, 2685  
**Albert**, E., 2730, 2841, 2870, 2872  
**Albert**, K., see *Chemische Fabriken*  
**Albert**, K., 1119  
**Albert**, K., and L. Behrend, 301  
**Alberti** and Hempel, 736  
**Albertoni**, P., 2431  
**Alberts**, G., 2319  
**Albrand**, H., 933  
**Albrecht**, 2981  
**Albrecht**, H., 2645  
**Albrecht**, J., 1070, 2586, 2739, 2767,  
 2768  
**Albright**, G., and J. Hood, 1011  
**Albright**, G., see *F. Rossiter*  
**Alby United Carbide Factors, Ltd.**,  
 918, 1006  
**Alean**, 507  
**Aleher**, V., 1074  
**Aleock**, W., and G. Davis, 1119,  
 1288  
**Alcohol Syndicate, Ltd.**, see *B. Atter-*  
*bury*  
**Alcohol Syndicate, Ltd.**, 2415  
**Allen**, C., see *G. White*  
**Alder**, R., 170  
**Aldrich**, 2481  
**Aldrich**, I., see *E. Houghton*  
**Aldrich**, T., 2446  
**Aldrich**, T., and C. Beckwith, 2443  
**Alemand**, T., 2601  
**Alexander**, 2782  
**Alexander**, James, and Vint, 665  
*Alexander*, H., see *G. James*  
**Alexander**, H., 1011, 2713  
**Alexander**, J., 2365  
**Alexander**, R., 2765  
*Alexander*, T., see *F. Beatty*  
**Alexander**, W., 2566, 2756  
**Alexandre**, 2888  
*Alexandroff*, A., see *T. Rudukoff*  
**Alexandrow**, W., 1335  
**Alexejeff**, W., 1011, 2440, 2451, 2533.  
**Alger**, 2985  
**Al-Cohen**, E., 2700  
**Alan**, A., 2681  
**Aln**, 2786  
**Alker**, F., 2403, 2997  
**Allaire**, H., see *L. Desvauz*  
*Allan*, see *Macfayden*  
*Allan*, J., see *E. Knecht*  
**Allan**, W., 2697  
**Allard**, G., 1293  
**Allary**, E., 1413, 1444  
**Allary**, M., 1518  
**Allason**, U., 1637  
**Allen**, 2327  
**Allen and Tollens**, 242  
**Allen**, A., 665, 731, 1086, 1091, 1335,  
 2478, 2696  
**Allen**, A., and W. Chattaway, 2478  
**Allen**, E., and B. Tollens, 238, 293  
*Allen*, J., see *H. Allen*  
*Allen*, J., see *R. MacIsaac*  
*Allen*, J., see *R. Thieffall*  
**Allen**, John H., 1468  
**Allen**, L., 2600  
**Allen**, M., 2700  
**Allen**, R., 2516  
*Allen*, S., see *J. Neely*  
**Allen**, S., 293, 2603  
*Allen*, T., see *H. Lang*  
**Allen**, T., 928  
**Allen**, W., 450, 665, 738  
**Allen**, W., and J., 1116  
**Allen**, W., and H. Bishop, 1043  
**Allen**, W., and W. Weaver, 2568  
*Allendorf*, A., see *J. Rudeloff*  
*Allendorf*, H., see *J. Rudeloff*  
**Allenou**, C., 2560  
**Allgemeine Elektrizitäts-Gesellschaft**,  
 684, 697, 719, 2768  
**Allhusen**, C., 1075  
**Allihn**, 99, 133, 201  
**Allihn**, F., 391, 476  
**Allhott**, J., 1974  
*Allis-Chalmers Co.*, see *Lamb*  
**Allison**, V., see *G. Jones*  
**Allmand**, A., and E. Williams, 933  
**Allport**, D., 2701  
**Allyre**, P., 1702, 2948  
*Almeida*, see *D'Almeida*  
*Almgren*, E., see *H. Bergstrom*  
**Almond**, J., and St Andrews, 293.  
**Almy**, C., 504

- Alomert, A., and J. Bondyvenne, 2682  
 Alonzo-Consoli, A., 1033  
 Alpy, J., and V. Bruster, 2534  
 Alpe, R., and F. Moore, 2698  
 Alsacienne de Constructions Mecaniques, 2648  
 Alsberg, C., 2484  
 Alsberge, J., 693  
 Alshech, H., 391  
 Alsteden, P., and J. Wulffing, 2768  
 Alsop, J., 700  
 Alt, H., *see* K. Fische  
 Alt, H., 304, 665  
 Altendorf, J., *see* P. Fische  
 Altenack, *see* I. von Helmer Altenack  
 Althausse, M., 504, 3000, 3025, 3047  
 Althausse, C., 2628  
 Altmann, E., 293  
 Altan Shee *see* P. Altan Shee  
 Aluminium Industrie Aktien Gesellschaft, 1006 A  
 Alvisi, U., 1075, 2955  
 Alzagary, *see* J. Buxens De Alzagary  
 Amagat, E., 665, 1077, 2405, 2436, 2451  
 Amann, J., 2466  
 Amark, 1867  
 Ambrom, 390  
 Ambrom, H., 47, 320, 1765, 2757  
 Ambruster, H., 2651  
 Amend, O., 2385, 2496  
 "Amateur," 2840  
 American Cyanamid Co., *see* G. Cox  
 American Cyanamid Co., 724, 900, 935  
 American Foreote Co., 2971  
 American Graphophone Co., 2734, 2737  
 American Linseed Co., 1889, 2686  
 American Nitro Products Co., 852  
 American Ordnance Co., 2932  
 American Smokeless Powder Co., 2955  
 American Viscose Co., 3064  
 American Zylonite Co., 2037, 2662, 2666  
 Ames, B., 2712  
 Amico, Z., d, 955  
 Amiot, J., 1834  
 Ammon, B., 269  
 Ammon, P., 293  
 Ammundsen, J., and E. Rasmussen, 2601  
 Amos, C., and W. Anderson, 195  
 Ampere Electrochemical Co., 2532, 2533  
 Amseder, F., 2912  
 Amstutz, 2909  
 Amstutz, N., 2547  
 Anaconda Copper Co., 1076  
 Anchors, G., 1849  
 Ancuta, J., 2765  
 Anderson, I., *see* R. Naving  
 Andernacher Textilwerk, 226  
 Anders, G., and C. Elliott, 2685  
 Anders, J., 1632, 2162, 2959, 2970  
 Andersen, E., 918, 941, 1203  
 Anderson, *see* H. Black  
 Anderson *see* Collay  
 Anderson, I., *see* J. Anderson  
 Anderson, A., 268, 450, 664, 666, 1041, 2928  
 Anderson, A., and C. Aig, 268  
 Anderson, I., *see* R. Nestell  
 Anderson, E., 660, 1122, 2468, 2818, 2952  
 Anderson, E., and H. Pierce, 2509  
 Anderson, F., 1409  
 Anderson, H., 2567  
 Anderson, I., and A., 2500, 2914  
 Anderson, I., *see* G. Burnside  
 Anderson, I., 1072  
 Anderson, O., 2563  
 Anderson, T., 1  
 Anderson, V., 666  
 Anderson, W., *see* C. Amos  
 Anderson, W., 1031, 2955, 2985  
 Andes, 2601, 2768, 3014  
 Andes, L., 2280, 2599, 2601, 2658, 2671, 2767  
 Ando, F., 475  
 Andra, M., 2844  
 Andre, *see* Chapuis  
 Andre, G., *see* M. Brithelot  
 Andre, G., *see* C. Cartis  
 Andre, G., 2914  
 Andrias, 2694  
 Andrian, R., 2535  
 Andrieux, M., 2826  
 Androff, E., 711, 1057  
 Andres, E., 2578  
 Androsen, A., 2768  
 Andronetti, C., 687  
 Andrew, 458  
 Andrew, G., and Wetenboursing, Ltd., 2409  
 Andrews, A., 2744  
 Andrews, E., 98, 99  
 Andrews, L., 1050, 1097, 2308, 2498, 2499  
 Andrews, L., and C. Ende, 2458  
 Andrews, L., and H. Goettisch, 390, 440  
 Andrews, R., 2533  
 Andrees, S., *see* J. Almond  
 Andrews, T., 2498, 2500



- Andrews, T., and P. Tait, 712.  
 Andriessen, H., and J. Scheideman-  
 del, 918.  
 Andriessens, H., 694, 851.  
 Andrieux, M., 2832.  
 Anelli, *see* Purgotti.  
 Anelli, G., *see* G. Oddo.  
 Angamarre, L., 2799, 2848, 2900.  
 Angel, H., 1075.  
 Angele, W., 428.  
 Angeli, A., 1679, 2299, 2367, 2513.  
 Angeli, A., and G. Errani, 2299.  
 Angeli, A., and E. Rimini, 2513.  
 Angerer, 2821, 2829.  
 Angerer, V., 2819.  
 Angerstein, H., 1131.  
 Angibaud, L., 801.  
 Anglo-American Tooth Manufactur-  
 ing Co., 2715.  
 Anglo-French, v. F., and S., Ltd.,  
 and J. Edwards, 1790, 2984.  
 Angström, A., 1011.  
 Anhydrot-Leder Werke A. G. and  
 K. Haring, 3047.  
 Anitschkow, N., 2781, 2782.  
 Annan, C., 2512.  
 Annandale, J., 293.  
 Annison, F., 2611, 2670, 2691, 2744.  
 Annison, R., and G. Oliver, 2031,  
 2616.  
 Ans, J. d', 1133.  
 Ans, J. d', P. Pascal, and B. Saxton,  
 807.  
 Ansarge, R., 430.  
 Ansay, V., and C. Nameche, 1871.  
 Anso Co., *see* F. Cossitt.  
 Anso Co., 2889.  
 Anselmino, O., 2391, 2768, 2790.  
 Ansted, D., 1011.  
 Anthes, M., 2749.  
 Anthes, M., and E. Lloyd, 2576,  
 2749, 2906.  
 Antheunis, 1810.  
 Anthon, 1317.  
 Anthon, E., 1057.  
 Anthon, F., 458.  
 Anthoni, C., 2827, 2897, 2917.  
 Anthonny, 2829, 2834.  
 Athonny, E. and H., & Co., 2890.  
 Anthony, F., 2897.  
 Anthony, H., *see* E. Anthony.  
 Anthony, H., 2036, 2834.  
 Anthony, R., 2853, 2892.  
 Anthony, W., 2721.  
 Antipow, J., 1047.  
 Antoine, C., 700, 1042, 1057.  
 Antoine, F., 1033.  
 Antonow, G., 2463.  
 A pard, *see* M. Guichard.  
 Apathy, 2782, 2783.  
 Apathy, S., 2780, 2781, 2782.  
 Apjohn, J., 2470.  
 Apostolo, C., 1036.  
 Appelius, W., 304, 2765.  
 Appelius, W., and R. Schmidt, 304.  
 Appleby, M., 1722.  
 Applegarth, E., 293.  
 Applegate, F., 2734.  
 Appletree, I., 2719.  
 Appleyard, T., and T. Deakin, 114.  
 Appleyard, W., *see* J. Bennett.  
 Arabol Manufacturing Company, 424.  
 Arachequesne, G., 2416.  
 Arago, 1573.  
 Araki, T., 326.  
 Aran, 2786.  
 Aran, M., 2791.  
 Arbenz, A., 2696.  
 Arbezcarne, L., 2539.  
 Arbuckle, J., *see* J. Meyer.  
 Archbold, G., 293, 465.  
 Archbutt, L., 961.  
 Archer, 2799.  
 Archer, C., 2749, 2850, 2859, 2862,  
 2909.  
 Archer, F., 2797, 2799, 2800, 2804,  
 2807, 2812, 2815, 2818, 2821, 2823,  
 2827, 2848, 2851, 2897, 2900.  
 Archer, G., 2734.  
 Archereau, 1360.  
 Archibald, E., and D. McIntosh,  
 2436.  
 Archibald, J., 2725.  
 Archibald, R., *see* A. Fargier.  
 Arent, A., 1790, 2615, 3050.  
 Arents, M., 2900.  
 Arentz, 2868.  
 Argo, W., 666, 719.  
 Argutinsky, 2783.  
 Aria, C., 293.  
 Aries, E., 2498, 2504.  
 Arkins, 1878.  
 Arkwright, 487.  
 Arledter, F., 3079.  
 Arledter, H., 104, 293, 338, 564,  
 2025, 2720.  
 Arlt, O., 304.  
 Armal, A. de, *see* P. Guye.  
 Armand, 2786.  
 Armand, P., 2905.  
 Armande, A., 2609.  
 Armandy, L., 2892.  
 Armbruster, F., 2734.  
 Armin, H., 2604.  
 Armingeat, P., 2558.  
 Arminius Copper Mines Co., 1049.  
 Armitage, H., 2725.  
 Armour Fertilizer Works, 852, 933,

- 1000, 1006A.  
 Arms, J., 2658.  
*Armstrong, E., see E. Fischer.*  
 Armstrong, E., 6, 1358, 1375, 2493.  
*Armstrong, H., see J. Ackworth.*  
 Armstrong, H., 1100, 2513, 2534, 2571.  
 Armstrong, H., and E. Frankland, 2491.  
 Armstrong, H., and T. Lowry, 1294.  
 Armstrong, H., and F. Worley, 1312.  
 Armstrong, J., 2725.  
 Armstrong, K., and W. Tilden, 2534.  
 Armstrong, T., 2865.  
*Arnault, see Chabaud-Arnault.*  
 Arndt, 1157.  
*Arndt, K., see G. Kuhlbaum.*  
*Arndt, K., see G. Knorre.*  
 Arndt, K., 1004, 2409, 2442.  
 Arnold, A., 2604, 2619.  
 Arnold, C., 736, 2473, 2583, 2608, 2677, 2756.  
 Arnold, C., A. Fox, A. Scott and H. Roberts, 1826, 2623.  
 Arnold, J., 2747.  
 Arnott, A., 2511, 2758.  
 Arnott, J., 957, 958, 1993, 2562.  
 Arnould and David Cie, 3065.  
 Arnould, J., 195.  
 Arnould, d' H., 2659, 2699.  
 Arnould, J., and I. Jammau, 2398.  
 Arns, J., 2744.  
 Arnstädter Malzfabrik H. & S. Windesheim and C. ten Doornkaat-Koolman, 2768.  
 Arnstein, G., 2560.  
 Aron, 2699.  
 Aron, H., 2575.  
*Arons, L., see E. Cohn.*  
 Arons, L., 1012.  
 Aronstein and Schulze, 121.  
 Aronstein, L., and S. Meihuizen, 1012.  
 Arosio, M., 2615, 3061.  
*Arrault, J., see J. and C. Schmerber.*  
 Arrault, J., and J. and C. Schmerber, 2022.  
 Arrhenius, S., 680, 952, 1742, 1746, 2404, 2432, 2441, 2454, 2497, 2499, 2501, 2504.  
*Arsdale, see G. Van Arsdale.*  
 Arsem, W., 2768.  
 Arsenic Committee, 1335.  
 Artlett, R., 2875.  
 Arzruni, A., 1012.  
 Asahi Camphor Co., 2512.  
 Asahi Camphor Refining Co., 2533.  
 Asbestwaren-Fabrik Christolitwerke, 2768.  
 Asboth, A. v., 390, 410, 427, 1056, 2454.  
 Asbrand, E., 1091.  
 Aschan, G., 1812.  
 Aschan, O., 2513, 2533.  
 Aschas, G., 2030.  
 Aschkinass, E., 1761.  
*Aschoff, K., see P. Jannasch.*  
 Ashbridge, W., 2793.  
 Ashcroft, 685.  
 Ashcroft, E., 685, 689, 894, 930, 932, 1006A.  
*Ashe, L., see J. Northrop.*  
 Ashe, L., and J. Senior, 2397.  
 Ashman, W., 2836.  
 Ashman, W., and R. Offord, 2853.  
 Ashton, J., and E. Kayser, 226.  
 Ashton, R., and Calico Printers Association, 3022.  
 Ashwell, J., 231, 3072.  
 Ashworth, A., 226, 428, 2049.  
 Ashworth, A., and J. Hall, 3065.  
 Ashworth, D., and R. Eaton, 1391.  
 Askau, 2870, 2882.  
*Askenasy, P., see W. Fraenkel.*  
*Askenasy, P., see G. Teichner.*  
 Askenasy, P., 666, 1348.  
 Askenasy, P., R. Leiser and N. Grunstein, 2418.  
 Askenasy, P., and M. Mugdan, 1303.  
 Askenasy, P., and E. Renyi, 666.  
 Asker, E., 504.  
*Askham, W., see J. Smith.*  
 Aspinall, F., 431.  
 Aspinwall, 1722.  
*Aspinwall, H., see J. Blomen.*  
*Aspinwall, H., see M. Wilkins.*  
 Aspinwall, H., 2336, 2347, 2353, 2928.  
 Assadas, S., 1780, 1950, 1951.  
 Asselot, 1693.  
 Asselot, E., 2890.  
 Asselot, M., 1779.  
 Asson, d' A., and J. Stoerk, 2638.  
 A/S Themes Mek. Voerkstad, 27.  
*Aslon, E., see W. Ramsey.*  
 Aston, S., 451, 664.  
 Atcker, B., 2682.  
 Aten, A., 1035.  
*Atkins, F., see C. Bedford.*  
 Atkins, G., 570, 608.  
 Atkins, W., 2445.  
 Atkins, W., and E. Wilson, 436.  
 Atkinson, A., 448.  
 Atkinson, C., 2714.  
 Atkinson, J., 2744, 2860, 2868.  
 Atkinson, R., 419, 464.  
 Atkinson, W., 2512.  
 Atmospheric Oxygen and Power Co.,

- 687  
 Atmospheric Products Co., 685, 693,  
 695, 698, 701, 825  
 Atterbury, B., T. Macalpine and  
 Alcohol Syndicate, Ltd., 2415  
 Atwell, H., *see* M. Forster  
 Atwood, L., 293  
 Aub, A., 2707  
 Aubel, E. van, 1012  
 Aubergier, H., 2469  
 Aubert, A., 2964  
 Aubert, A., and S. Nauckhoff, 2955  
 Aubert, L., 2623  
 Aubert, L., and V. Giraud, 180  
 Aubertin, 2780  
 Aubertin, E., 895, 937  
 Aubertin, G., 2783  
 Aubigne, B., d', and E. Linch, 2704  
 Ancher, T., 900  
 Anchu, A., 2956  
 Auchu, H., 2976  
 Audemars, G., 1878, 2627  
 Auden, H., and G. Fowler, 712, 715  
 Audereth, F., *see* H. Krissmanek  
 & F. Audereth  
 Audibert, A., 293  
 Audige, *see* Du Jardin Beaumetz  
 Audouin, M., 957  
 Audra, 2865  
 Audra, C., 2836  
 Audres, G., and C. Elliot, 2744  
 Audry, C., 2786  
 Auer, 2885, 2900  
 Auer, K., 1291  
 Auerbach, F., 2460, 2768  
 Auerbach, J., 304  
 Aufermann, *see* H. Strecker Aufer-  
 mann  
 Aufhauser, D., 304  
 Aufrecht, 2794  
 Auge, 2786  
 Auger, V., 2418  
 Aulard, A., 334, 419  
 Aumont, E., 698  
 Aumont, H., 2680, 2712  
 Aunter, A., *see* J. Wilkes  
 Aurenque, J., 2553, 2649  
 Aussiger Verein für Chemische und  
 Metallurgische Fabrikation, 1363  
 Austen, Y., *see* F. Govers  
 Austen, E., *see* F. Maywald  
 Austen, P., 709, 712  
 Austen, P., and F. Maywald, 2568  
 Austen, P., F. Maywald, and F.  
 Govers, 2568  
 Austerweil, G., 2530, 2533  
 Austerweil, G., and P. Pipereaut,  
 2591  
 Austin, *see* Holborn  
 Austin, L., *see* N. Holborn  
 Austin, O., 690  
 Austin, P., 1031  
 Autenrieth and Bayrhammer, 242,  
 245  
 Auty, A., 2642  
 Auwers, K., 2392, 2523, 2768  
 Auwers, K., and A. Imhauser, 3002  
 Auwers, K., E. Kohnert, and F. v.  
 Meyenburg, 3002  
 Auxerre, 2808  
 Auzenat, R., 1056  
 Auzies, J., 666, 1296  
 Ivenarius, R., *see* G. Link  
 Averos, O., 1574  
 Avery, J., 2916  
 Avet, H., 2827, 2909, 2918  
 Ivis, *see* D. Ivis  
 Axelrad, S., and I. Hochstadter, 2393  
 Axell, F., *see* J. Stevens  
 Axtell, F., 2486, 2890  
 Axtell, J., 2668  
 Aykroyd, H., *see* H. Aykroyd  
 Aykroyd, K., 226  
 Aykroyd, W., and H., 226, 3065  
 Aykroyd, H., and P. Kraus, 3072  
 Aylsworth, J., *see* T. Edson  
 Aylsworth, J., 2536, 2660, 2755,  
 2768, 3022, 3059  
 Aylsworth, P., 2734  
 Aymonnet, 2451  
 Ayres, F., 2728  
 Ayres, G., *see* W. Ayres  
 Ayres, L., *see* W. Ayres  
 Ayres, W. L., and G., 2602  
 Ayton, A., 2860  
 Ayyangar, P., *see* B. Viscanath  
 Azemba-Bigon, A., and C. Bihotti,  
 2670  
 Babatz, P., 1203, 1295  
 Babcock, J., W. Leonard, and E.  
 Crane, 2574  
 Babe, J., and H. Pape, 1086  
 Babington, F., and A. Tingle, 2424  
 Babis, H., 2579, 2618  
 Babo, L., v. 1590, 2574, 2658, 2805,  
 2810, 2812, 2822, 2825  
 Baboin, A., et Cie., 2614  
 Bacalan, *see* Soc. anon. Dyle  
 Bach, H., 1375  
 Bachet, 4  
 Bachet and Marchard, 195  
 Bache-Wiig, B., 304  
 Bache-Wiig, C., 293  
 Bachrach, D., 1779, 1788, 1892,  
 2626, 2691, 2809, 2856  
 Bacigalupi, A., 2677, 2734, 2735,  
 2744, 2747

- Backe, A., 250  
 Backeland, L., 2918  
 Backer, H., 2552  
 Backhaus, A., and U. S. Industrial Alcohol Co., 2426  
 Backmann, C., 2700  
 Backnell, A., 2826  
 Backstrom, H., *see* I. Cederberg  
 Backstrom, H., and G. Kyhlberger, 898  
 Bacon, 1584  
 Bacon, N., 688  
 Bacon, R., *see* N. Hart  
 Bacon, R., *see* Metal Research Co.  
 Bacon, W., *see* E. Bolton  
 Bacon, W., *see* C. Harrison  
 Bacon, W., *see* R. Sindall  
 Baden Pritchard, 2853  
 Bader, R., 185, 242, 1639, 1848  
 Badermann, G., 304  
 Badin, A., *see* P. Banet  
 Badin, A., 847  
 Badische Anilin u. Soda Fabrik, *see* C. Claesson  
 Badische Anilin und Soda Fabrik, *see* I. Fuchler  
 Badische Anilin u. Soda Fabrik, 226, 227, 234, 304, 693, 697, 698, 719, 729, 844, 845, 847, 849, 854, 863, 896, 903, 904, 905, 914, 916, 917, 918, 920, 922, 923, 924, 927, 937, 940, 943, 945, 946, 959, 985, 988, 1006, 1091, 1092, 1100, 1103, 1105, 1109, 1111, 1115, 1116, 1120, 1121, 1122, 1123, 1128, 1137, 1139, 1140, 1143, 1144, 1148, 1149, 1151, 1167, 1189, 1191, 1192, 1276, 1288, 1296, 1302, 1350, 2391, 2465, 2466, 2468, 2482, 2519, 2527, 2528, 2529, 2544, 2545, 2547, 2548, 2582, 2584, 2621, 2640, 2660, 2768, 2964, 2996, 3004, 3006, 3010, 3013, 3022, 3028, 3041, 3045, 3046  
 Badout, A., and J. Valadon, 293  
 Badou, C., 293  
 Baechlin, P., 2400  
 Badeker, K., 2405  
 Baekeland, L., 293, 304, 606, 2414, 2658, 2659, 2665, 2768  
 Baendisch, 1899  
 Baer, 197  
 Baer, A., 2764  
 Baerfuss, A., *see* E. Briner  
 Baerle, v., 293  
 Bäumer & Co., 2684  
 Bauml, W., 3001  
 Baeyer, v., 242  
 Baeyer, A., 4, 1619  
 Baeyer, A., and V. Villiger, 1717, 2769  
 Baggaley, R., 955, 1027  
 Baggs, I., 948, 985, 1011  
 Baggs, I., and W. Simpson, 724  
 Bagley, 990  
 Bagley and Feilmann, 666  
 Bahret, J., 2721  
 Bailey, *see* C. Stuart-Bailey  
 Bailev, C., 2564  
 Bailey, C., H. Denny and W. Norris, 808  
 Bailey, G., *see* B. Hart  
 Bailev, G., 1247, 1827  
 Bailey, H., *see* C. Hart  
 Bailey, H., *see* J. London  
 Bailev, J., 2513, 2906  
 Bailev, S., 900  
 Bailho, G., 3022, 3023  
 Bailv, W., 436, 2900  
 Bain, J., *see* S. Dushman  
 Bain, S., *see* British Alcolac, Ltd.  
 Baines, F., 466  
 Baird, G., 2986  
 Baiteau, G., 3001  
 Baither, O., and The Chemische Fabrik Greishorn Elektron, 998  
 Bai, C., 2602, 2628, 2649, 2897  
 Baker, A., and J. Tomlinson, 293, 374  
 Baker, B., 2686  
 Baker, F., *see* J. Nathan  
 Baker, F., 1079, 1722, 1735, 1736, 1746, 2278, 2383, 2408, 2420, 2545  
 Baker, H., *see* M. Baker  
 Baker, H., 666, 712, 715, 813, 945, 1033, 1100, 1206, 1292, 2862  
 Baker, H., and M., 666, 717, 1257  
 Baker, H., J. Poole and W. Stone, 811  
 Baker, H., and R. Strutt, 177  
 Baker, H., E. Tiede, R. Strutt, and E. Domcke, 717  
 Baker, J., *see* A. Lang  
 Baker, J., *see* H. Sherman  
 Baker, J., 469, 2713  
 Baker, J., and F. Day, 1067  
 Baker, J., and H. Hulton, 469  
 Baker, M., *see* H. Baker  
 Baker, M., *see* H. Breerton  
 Baker, M., and H., 672  
 Baker, T., *see* G. Heyl  
 Baker, T., *see* F. Nathan  
 Baker, T., 2553, 2853, 2869, 2872  
 Baker, W., 317, 321, 2976  
 Bakewell, J., 2981  
 Bakhoven, G., 2450  
 Bakker, C., 2570  
 Balagmy, A., 2747  
 Balagny, 2836  
 Balagny, G., 1634, 2886, 2888, 2889,

- 2897, 2906, *adv.*  
 Balaguy, 2684.  
 Balard, A., 712, 2470.  
 Balbiano, L., 2451, 2516, 2520.  
 Balconi, A., 2918.  
 Baldauf Bros., 2674, 2677, 2876.  
 Baldeck, G., 2712.  
 Baldo, G., 1299.  
 Baldock, J., 2875, 2893, 2902.  
 Baldwin, A., 2601.  
 Baldwin, S., *see* A. Bigelow.  
 Balfour-Guthrie Investment Co., *see* Goid.  
 Ball, J., 2562.  
 Ball, R., 2600.  
 Ball, S., 2482.  
 Ball Grain Explosives' Co., *see* F. and E. du Pont.  
 Ballabene, 1810.  
 Ballabene, R., 2953.  
 Balland, 389.  
 Balland et Cie, 3045, 3051, 3071.  
 Ballard, H., 2734.  
 Ballaudof, *see* Billaud.  
 Balling, 1572.  
 Ballo, M., 2516.  
 Ballore de, *see* H. de Montessus de Ballore.  
 Ballot, *see* C. Buijs-Ballot.  
 Balmain, W., and W. Menzies, 1313.  
 Bals and Broglia, 2454.  
 Balser, W., 3057.  
 Balston, M., and J. Briggs, 3011.  
 Balston, R., *see* J. Briggs.  
 Balthasart, J., 2649.  
 Baltz, K. von, 2985.  
 Baltzer, 242.  
 Baltzer, A., 184.  
 Baly, C., and F. Donnan, 692.  
 Baly, E., and F. Donnan, 666.  
 Baly, E., and J. Chorley, 1811.  
 "Bamag," 900.  
 Bambach, A., 900, 901, 1084, 1129, 1301.  
 Bamber, J., 2876.  
 Bamberger, E., and A. Rinhorn, 2480.  
 Bamberger, J., 2492.  
 Bamberger, M., *see* R. Benedikt.  
 Bamberger, M., and A. Landsiedl, 666.  
 Bamfield, C., 2713.  
 Bamforth, S., 2865.  
 Bancellin, M., 1746.  
 Bancel, *see* J. Larguier des Bancel.  
 Bancroft, 2489.  
 Bancroft, G., 486.  
 Bancroft, W., 32, 916, 1103, 2480, 2497, 2915.  
 Bancroft, W., and R. Currie, 176.  
 Banerji, H., *see* B. Dutt.  
 Bang, A., and C. Clotus, 1874, 1894, 2639.  
 Bang, A., and C. Ruffin, 2475.  
 Bang, I., *see* C. Monestier.  
 Bang, I., and M. Ruffin, 2413.  
 Bangert, F., 1011.  
 Banhegyi, A., *see* H. Heyderhaus.  
 Banigan, T., 813.  
 Bankart, A., 1011.  
 Bankes, *see* Sachs-Bankes.  
 Banks, 2847, 2852.  
 Banks, E., 2801, 2836, 2841.  
 Banks, J., *see* J. Denison.  
 Banks, W., 2597.  
 Bannaud, J., 2908.  
 Bannehr, J., *see* A. Upward.  
 Bannister, C., 1082.  
 Bannow, A., 2410, 2494, 2495.  
 Banque du Radium, The, 453.  
 Banthier, G., 305.  
 Bantlin, G., 40, 305.  
 Bantock, J., 1624, 2017, 2945.  
 Banziger, E., *see* G. Lunge.  
 Baquesne, B., 2617.  
 Barab, J., *see* W. Cope.  
 Barab, J., 2955.  
 Barátófi, M., 2421.  
 Baragiola, W., and O. Schuppli, 666.  
 Baranetzky, J., 397, 1768.  
 Baranoff, C. v., and E. Hildt, 1013.  
 Baranoff, W., 1030.  
 Baratti, 2819.  
 Barbaglia, A., 1020.  
 Barbaglia, G., 1012, 2439.  
 Barbe, 1788.  
 Barbe, L., 1006A.  
 Barbelenet, S., *see* M. Denis.  
 Barber, 2817.  
 Barber, C., 1205.  
 Barber, J., *see* J. Holden.  
 Barbet, E., 686, 2383, 2424, 2553.  
 Barbet, E., et Fils et Cie., 686, 2426, 2557.  
 Barbezat, A., 2553.  
 Barbiaux, C., 1383.  
 Barbier, E., 790, 1222, 1244, 1271, 1287, 1290, 1292, 1446.  
 Barbier, L., and L. Roux, 2499.  
 Barbier, P., 2513.  
 Barbier, P., and V. Grignard, 2517.  
 Barbier, P., and L. Roux, 2432.  
 Barbier, S., and C. Coiffier, 2718, 2765.  
 Barbiere, J., *see* E. Schülze.  
 Barbieri, D., 2875.  
 Barbieri, J., *see* V. Meyer.  
 Barbieri, J., and F. Förster, 2439.

- Barbneff, W.*, see *C. Claus*.  
*Barboni, E.*, 2557.  
*Bardelli, A.*, 92, 2649.  
*Bardin, A.*, 2498, 2684, 2764.  
*Bardt, A.*, see *A. Doroschewsky*.  
*Bardwell, J.*, 2820.  
*Bardy, see Peligot*.  
*Bardy, 1626, 2630, 2658, 2998, 3073.*  
*Bardy and Bequard, 2450.*  
*Bardy, C.*, see *A. Riche*.  
*Bardy, C.*, 2383, 2475, 2836, 2845, 2875, 2988.  
*Bardy, C., and L. Bordet, 2497.*  
*Bardy, P.*, see *Pages, Camus et Cie*.  
*Barendrecht, H.*, 2433.  
*Barger, G., and E. Field, 410.*  
*Barie, 2812.*  
*Barilari, S.*, 1012.  
*Baringer, G.*, 2780.  
*Baringer, L.*, 2700.  
*Barker, 2800, 2812, 2821, 2903.*  
*Barker and Hart, 2811.*  
*Barker, F.*, see *J. Barker*.  
*Barker, F.*, 666.  
*Barker, H.*, see *J. Dean*.  
*Barker, H.*, 456.  
*Barker, J.*, see *Birmingham Metal and Munitions Co., Ltd.*  
*Barker, J., G. Sheolin and F. Barker, 293.*  
*Barker, W.*, 2918.  
*Barlow, 611.*  
*Barlow, E.*, 2599.  
*Barlow, J.*, see *W. Browning*.  
*Barlow, W.*, 2302.  
*Barnwater, F.*, 2497, 2498, 2499.  
*Barnard, S.*, see *T. Bolam*.  
*\*Barnard, T.*, see *R. Revell*.  
*Barnes, see C. Cross*.  
*Barnes, 1619, 2812, 2813, 2828.*  
*Barnes, D.*, 2730.  
*Barnes, E.*, 2394.  
*Barnes, H.*, 1012, 2690.  
*Barnes, J.*, see *J. Riley*.  
*Barnes, J.*, 526, 2786, 2789.  
*Barnes, W.*, 2890.  
*Barnett, C.*, see *M. Hopkins*.  
*Barnett, L.*, 2760.  
*Barnett, M.*, and *L. Burgess, 933.*  
*Barnieri, see E. Schulze*.  
*Barnwell, S., and A. Rollason, 1803, 2573, 2604, 2605, 2660, 2674, 2706.*  
*Baron, A., and C. Guinard, 2897.*  
*Baroody, A.*, see *O. Beusterien*.  
*Barr, A.*, see *Cotton, Ltd.*  
*Barr, A., and H. Lazell, 3048.*  
*Barr, G., and L. Bircumshaw, 3049.*  
*Barral, J.*, see *Salokat*.  
*Barral, J., and Salvetat, 68, 113, 117.*  
*Barrallon, A.*, 2997, 2981.  
*Barrasford, T., and W. Faulkner, 2893.*  
*Barratt, A.*, see *A. Hill*.  
*Barratt, A., and A. Hill, 2749, 2900.*  
*Barratti, 2828, 2833.*  
*Barreswil, see A. Davanne*.  
*Barreswil, 2823.*  
*Barreswil and Davanne, 2823.*  
*Barreswil and Girard, 1300.*  
*Barreswil and Riliet, 1.*  
*Barreswil, L.*, see *C. Bernard*.  
*Barreswil, L.*, 1100.  
*Barrett, F.*, 504, 663, 1930.  
*Barrett, H.*, see *W. Elmore*.  
*Barrett, H.*, 2688.  
*Barrett, M.*, 1306.  
*Barrett, T.*, 2822, 2914, 2918.  
*Barrett, W.*, 1012.  
*Barret Co., see C. Dennis*.  
*Barrett Manufacturing Co., 2760.*  
*Barricelly, M., and C. Levi, 2909.*  
*Barringer, L.*, 2492.  
*Barrow, F.*, 1299.  
*Barrs, C.*, 1207.  
*Barruel, E.*, 1057.  
*Barschall, H.*, 690, 847.  
*Barstow, E., and J. Griswold, 2553.*  
*Bartelli, F., and L. Stern, 2460.*  
*Bartels, A.*, 2670, 2760, 2769.  
*Bartels, Dierichs & Co., 2621.*  
*Barth, A.*, see *J. Weise*.  
*Barth, K.*, 305, 1057, 2553.  
*Barth, L.*, 2448.  
*Barth, R.*, 1085.  
*Barth, S.*, 937, 1004, 1072, 1200, 1212.  
*Barthel, A.*, see *L. Collardon*.  
*Barthelemy, A.*, 293.  
*Barthelemy, E.*, 2759.  
*Barthelemy, H.*, 22, 23, 553, 2557, 2280, 2760.  
*Bartholomew, 1620, 2813, 2830, 2831, 2833.*  
*Bartholomew, W.*, 2834.  
*Bartholomew, W., and C. Leary, 451.*  
*Bartlett, J.*, 2858.  
*Bartlett, O.*, see *E. Sanger-Shepherd*.  
*Bartlett, T.*, see *W. Wood*.  
*Bartlett, T.*, 2725.  
*Bartoli, A.*, 1057.  
*Barton, J.*, 2706.  
*Bartsch, A.*, 1057.  
*Bartsch, C.*, 55, 293, 338, 1071, 1366.  
*Barwell, R.*, 2743.  
*Bary, de, 187.*  
*Bary, A., de, 348.*  
*Barzano & Zanardo, 920, 1006A.*  
*Basancele, de, see Tribouillet.*

- Basch, A., 2627.  
 Basch, D., 2711.  
 Baschieri, A., 2354.  
 Basenau, J., and Cohen, 2765.  
 Bashford, W., 2865.  
 Basiaux, P., 2686.  
 Baskerville, C., 2308, 2408, 2412, 2424, 3061.  
 Baskerville, C., and F. Miller, 2308.  
 Basler, G., 2602, 2621.  
 Basler, J., & Co., 2530, 2660, 2674.  
 Basler Chem. Fabr. 2529, 2530, 2531, 2532.  
 Baselli, A., *see* A. Bischler  
 Baselli, A., 2534.  
 Basse, E., and G. Faurge, 1099.  
 Basset, H., *see* E. Palk.  
 Basset, L., 702, 1027, 1028, 1084, 1091, 1094, 1113, 1119, 1129, 1296, 1303, 2598, 2700.  
 Basset, N., 4, 1129, 1300, 2404.  
 Bassett, H., 709, 801, 2396, 2484.  
 Baswitz, C., 77.  
 Baswitz, M., 469.  
 Bataille, E., 2553.  
 Bataille, E., and R., 2553.  
 Bataille, R., *see* E. Bataille.  
 Bate, W., *see* C. Harrison.  
 Bate, W., 439, 2952.  
 Bate, W., and F. Orme, 838, 843, 1006, 1392.  
 Batelli, A., *see* S. Pagliani.  
 Bateman, D., 2600.  
 Bates, A., *see* G. Winn.  
 Bates, A., 2714.  
 Bates, J., 293, 305.  
 Bates, W., *see* The National Explosives Co.  
 Batho, W., 2909.  
 Batik, 2399.  
 Batka, J., 4.  
 Batonnier, E., and P. Michel, 2681, 2719.  
 Batschinski, A., 2498, 2499.  
 Battaille, O., and P. Pipereant, 1070.  
 Batte, 2792.  
 Batteg, R., 1517.  
 Battegay, M., *see* Heilmann & Co.  
 Battegay, M., 469, 2746.  
 Battegay, M., and F. Noelting, 2744.  
 Battegay, M., and T. Volz, 2653.  
 Battelli, A., 2462.  
 Batten, G., 2743.  
 Batten, W., 2786.  
 Battis, J., and A. Goodell, 2643, 2682.  
 Battle, H., *see* J. Mills.  
 Battsch, C., 1391.  
 Bau, A., 2481.  
 Baubigny, H., 69.  
 Baucher, F., 2319.  
 Baud, A., *see* P. Guye.  
 Baud, E., 666.  
 Baudisch, 698, 2394.  
 Baudisch, J., 293.  
 Baudisch, O., 666.  
 Baudisch, O., and G. Klinger, 694, 704.  
 Baudot, J., 2553.  
 Baudrimont, E., 408.  
 Baudry, A. de, d'Asson, *see* F. de Brandel.  
 Baudry, A. de, d'Asson, *see* G. Dubois.  
 Baudry, A., 459.  
 Baucr, 1090.  
 Bauer, A., 2441, 2480.  
 Bauer, A., and E. Klein, 2448.  
 Bauer, A., and P. v. Mertens, 1322.  
 Bauer, C., 1870.  
 Bauer, E., *see* A. Haller.  
 Bauer, E., 2415, 2601.  
 Bauer, G., 1057.  
 Bauer, H., 2409.  
 Bauer, J., *see* J. Ledergerber.  
 Bauer, K., 2452.  
 Bauer, L., 453.  
 Bauer, L., and T. Speck, 454.  
 Bauer, M., 2749, 2856.  
 Bauer, R., *see* R. Schiller.  
 Bauer, R., 238.  
 Bauge, G., 449.  
 Bauge, G., A. Dumiez, and A. Seauve, 2881.  
 Bauhegyi, A., and K. Glaser, 2647.  
 Bauke, F., 1031.  
 Baum, H., 1130.  
 Baum, M., *see* J. Hasenbaumer.  
 Baumann, 292, 3021.  
 Baumann, C., and G. Diesser, 2646, 2649, 2760.  
 Baumann, E., 416.  
 Baumann, F., 293.  
 Baumann, J., 896, 897, 1005, 1006, 1006A.  
 Baumann, L., G. Thesmar, and S. Jones, 2744.  
 Baume, A., 725.  
 Baume, G., and M. Robert, 717.  
 Baume, M. de la, *see* P. Rousseau.  
 Baumert, G., and K. Halpern, 389.  
 Baumgartner, *see* H. Koehlin-Baumgartner.  
 Baumgartner, A., 2749, 2876.  
 Baumbauer, I., 242.  
 Baumbauer, von E., and P. Fromberg, 4.  
 Baunach, E., 2643.  
 Baunard, W., 666, 901.

- Baur, C., 666.  
 Baur, E., 945.  
 Bauschlicher, A., *see* E. Schwarz.  
 Bauschlicher, A., 2395.  
 Baux, H., and L. Glaenzers, 2713.  
 Bausil, *see* Vansteenberge.  
 • Baviers, van den, *see* Soc. Haemers  
 et van den Baviers.  
 Bawtree, A., 2734, 2909.  
 Baxeres De Alzugaray, J., 927.  
 Baxter, F., 2560.  
 Baxter, G., and C. Hickey, 666, 712.  
 Baxter, G., and F. Crover, 954.  
 Baxter, R., 2581.  
 Bay, C., 129.  
 Bay, L., *see* L. Vignon.  
 Bayard, 2825, 2829, 2834.  
 Bayard, Agnads, Fierlantz and  
 Doughty, 2809.  
 Bayard, E., 2746.  
 Bayard, F., *see* W. King.  
 Bayer, 467.  
 Bayer, A., 243, 295, 1643, 2449.  
 Bayer, A., and Niggli, 262.  
 Bayer, A., and V. Villiger, 2460.  
 Bayer, A., G. Heufeld, 1119.  
 Bayer, E., and S. Orla-Jensen, 2426.  
 Bayer, F., 844.  
 Bayer, F. & Co., *see* Farbenfabriken  
 vormals F. Bayer & Co.  
 Bayerische Aktien Gesellschaft f.  
 Chem. u. Landw. Fabrikate, *see*  
 H. Hulbert.  
 Bayerische Stickstoffwerke, Aktien  
 Gesellschaft, 943, 1006.1.  
 Baylay, J., 3079.  
 Bayley, T., 428.  
 • Bayley, W., 2906.  
 Bayliss, T., *see* King's Norton Metal  
 Co.  
 Bayliss, T., H. Smith, and H. Browns-  
 don, 2978.  
 Bayne, E., 2640.  
 Baynes, H., 812.  
 Baynes, H., and The Chemical and  
 Elektrolytic Syndicate, 986.  
 Bayrhammer, *see* Authrieth.  
 Baden, M., *see* H. Kiliani.  
 Beach, F., 2836, 2843, 2845, 2847,  
 2865.  
 Beach, N., *see* F. Egge.  
 Beadle, C., *see* C. Cross.  
 Beadle, C., *see* H. Steward.  
 Beadle, C., 4, 114, 293, 518, 1750,  
 2367, 3076, 3078.  
 Beadle, C., and O. Dahl, 514, 1750.  
 Beadle, C., and H. Stevens, 84, 223,  
 233, 293, 346, 579, 2396, 3065.  
 Beals, L., 1631, 1786, 2670.  
 Beals, L., and P. Thomas, 2696.  
 Bean, P., 425, 796.  
 Beardmore, W., & Co., and A.  
 Bremberg, 2955.  
 Beasley, F., 2832.  
 Beatty, D., and S. Irving, 3070.  
 Beatty, F., and T. Alexander, 2909.  
 Beatty, W., 1126, 2492, 2512, 2542,  
 2609, 2670, 2674, 2769, 3001, 3031,  
 3043, 3054.  
 Beau, H., 1780, 2578.  
 Beaumets, *see* Dujardin-Beaumets.  
 Beaumont, A., 2859, 2860, 2862,  
 2918.  
 Beaumont, W., 294.  
 Beauregard, T., de, 2799, 2827, 2863.  
 Beauverie, J., *see* A. Hollande.  
 Bebie, J., *see* G. Lunge.  
 Bebie, J., 1674.  
 Bechamp, *see* A. Haller.  
 Bechamp, G., 133, 201.  
 Bechamp, A., 1, 17, 47, 93, 97, 392,  
 408, 1575, 1589, 1634, 1642, 1647,  
 1759, 1817, 1823, 1848, 1854, 1899,  
 2449, 2801.  
 Becher, A., 2701.  
 Bechhold, H., 1022, 1770, 1771.  
 Bechi, E., 1011.  
 Bechi, G. de, 1081.  
 Bechi, G. de, and S. Bornett, 1033.  
 Bechtel, E., *see* E. Eck.  
 Bechtel, E., 77.  
 Bechtel, P., 2649.  
 Bechtold, W., 2714, 2715.  
 Beignoul, J., 1031, 1032.  
 Beck, *see* Buschow.  
 Beck, A., 114.  
 Beck, A., and J. Nicholson & Sons,  
 3048.  
 Beck, C., *see* C. Bosch.  
 Beck, C., *see* R. Bithell.  
 Beck, C., 2564.  
 Beck, E., *see* W. Borchers.  
 Beck, E., 666.  
 Beck, G., 2640.  
 Beck, J., *see* R. Bithell.  
 Beck, J., 727.  
 Beck, J., and O. Nenninger, 2015,  
 2016.  
 Beck, M., 225.  
 Beck, P., *see* H. Fresenius.  
 • Becker, *see* Fischeisen.  
 Becker, 1573, 2976, 3046.  
 Becker, E., 604, 664.  
 Becker, E., *see* J. König.  
 Becker, E., *see* C. Schwalbe.  
 Becker, F., 1329, 3070.  
 Becker, H., *see* W. Adeney.  
 Becker, H., *see* A. Coehn.



- Becker, H., 2501.  
 Becker, H., and F. Gross, 305.  
 Becker, J., 2396.  
 Becker, T., see A. Eichengruen.  
 Beckerhinn, C., 1625, 1717.  
 Beckett, E., 1518, 1930, 2310, 2314, 2319.  
 Beckett, F., 933.  
 Beckett, G., and W. Wright, 2513.  
 Beckingham, 2830.  
 Beckmann, J., 666, 1119.  
 Beckmann, 1035.  
 Beckmann, B., 2546.  
 Beckmann, E., see G. Schliebs.  
 Beckmann, E., 1012, 2405, 2460, 2481, 2501, 2512, 2520.  
 Beckmann, E., and H. Brüggemann, 2480.  
 Beckmann, E., and G. Fuchs, 2433, 2457, 2497.  
 Beckmann, E., G. Fuchs, and V. Gernhardt, 2457, 2501.  
 Beckmann, E., and V. Gernhardt, 2433, 2490.  
 Beckmann, E., V. Gernhardt and G. Fuchs, 2443.  
 Beckmann, E., R. Paul and O. Liesche, 1035.  
 Beckurts, 389.  
 Beckurts, H., and W. Freytag, 390, 411.  
 Beckurts, H., and R. Otto, 1057.  
 Beckwith, C., see T. Aldrich.  
 Beckwith, C., 2581.  
 Becquard, see Bardy.  
 Becquerel, E., 2809, 2870, 2883.  
 Becquerel, G., 2815.  
 Becquerel, H., 666, 709, 1012.  
 Becquevort, P., and C. Deguide, 801.  
 Beddinghaus, W., 71.  
 Bedford, C., see J. Bedford.  
 Bedford, C., 2482.  
 Bedford, C., and F. Atkins, 2764.  
 Bedford, F., and E. Erdmann, 917.  
 Bedford, J. and C., 2628.  
 Bedford, J. and C., and J. Kirk, 3060, 3061.  
 Beebe, C., see R. Adams.  
 Beebe, J., 2712.  
 Beechey, C., 2866.  
 Beechey, St. V., 2836, 2841, 2843, 2847.  
 Beek, see Van Beek.  
 Bees, 2809.  
 Beely, F., 2743.  
 Beely, J., 2743.  
 Beenken, J., 2702.  
 Beer, see W. Weidenmüller.  
 Beer, 2807.  
 Beer, B., 2600.  
 Beer, H., 2588.  
 Beers, F., 992.  
 Beeststone, N., see N. Whitehouse.  
 Beggaard, J., and B. Gottschalk, 4.  
 Begin, see Fournier.  
 Behal, A., see M. Guerbet.  
 Behal, A., 2388, 2497, 2516, 2532, 2674, 2895.  
 Behal, A., P. Magnier, and C. Tissier, 2528.  
 Behn, K., see R. Stoermer.  
 Behr, A., see F. Matthiessen.  
 Behr, A., 269.  
 Behrend, 727, 2416.  
 Behrend and Zimmermann, 1099.  
 Behrend, L., see K. Albert.  
 Behrend, L., 3042.  
 Behrend, P., see M. Maercker.  
 Behrend, P., 2439, 2478.  
 Behrend, see Norddeutsche Hütte Aktien Gesellschaft.  
 Behrens, 49, 66, 1292.  
 Behrens and Herzog, 61.  
 Behrens, A. and J., 2992.  
 Behrens, E. and J., 690.  
 Behrens, J., see E. Behrens.  
 Behrens, J., 348, 2992, 2994, 2996, 2997, 2998.  
 Behringer, G., 2780.  
 Beidert, P., 2796.  
 Beijerinck, 127, 391.  
 Beijerinck, M., 2442.  
 Beilby, 847.  
 Beilby, G., 1100.  
 Beilstein, F., see A. Reinecke.  
 Beim, W., see J. Domke.  
 Beindl, C., 927.  
 Beins, H., 1624.  
 Beirmeister, J., 391.  
 Beistle, C., 1928.  
 Beitlich, 2747.  
 Bekaert, A., see A. v. Hemplinne.  
 Bel, le, J., see J. Le Bel.  
 Belani, E., 294.  
 Belart, H., see F. Feist.  
 Belbeze, 2820, 2828, 2833, 2834, 2836.  
 Beldon, J., 2834.  
 Belger, J., 226.  
 Belin, E., 2827.  
 Belitski, 1600, 2801, 2806, 2816, 2851, 2853.  
 Belitzski, L., 2801.  
 Belitzski, L., W. Mayall, V. Heath, and C. Heisch, 2810.  
 Belknap, H., 2713.  
 Bell, see Hake.  
 Bell, A., see W. Booth.

- Bell, A., 2858, 2859.  
 Bell, D., IX.  
 Bell, G., see *F. Hale*.  
 Bell, G., see *A. Hollings*.  
 Bell, G., see *T. Kelly*.  
 Bell, G., 2168.  
 Bell, I., 1011.  
 Bell, J., 294, 2414, 2723.  
 Bell, J., and W. Taber, 806.  
 Bell, J., and H. Vollin, 2579, 2756.  
 Bell, L., 717.  
 Bell, M., see *C. Hake*.  
 Bell, T., 956, 1010, 1011.  
 Bell, W., 2600.  
 Bellamy, F., 1012.  
 Belland, see *Société Belland*.  
 Bellani, A., 1012.  
 Bellarminow, 2780.  
 Bellati, M., and S. Lussana, 709.  
 Bellaudof, 1624.  
 Bellet, 2627.  
 Bellignite La, see *La Bellignite*.  
 Bellingrodt, P., 1090. •  
 Bellini, 2839.  
 Bellini, G., see *A. Carobbi*.  
 Bellnas, 391.  
 Belloc, 2786, 2808, 2815.  
 Belloc, A., 2812.  
 Belloni, 2534.  
 Bellucci, I., 666, 694.  
 Belluci, G., 397. •  
 Bellwood, R., see *C. Downs*.  
 Belnisch, H., 3060.  
 Belohoubek, 243.  
 Belotini, G. v. 2998.  
 Belson, W., 1076.  
 Belt, W., and E. Bruckner, 2703.  
 Beltzer and Thiebaut, 227.  
 Beltzer, F., 4, 17, 27, 79, 92, 420, 508, 509, 510, 2623, 2627, 2639, 2651, 2657, 2658, 2760, 2769, 3044, 3052, 3062, 3065, 3071.  
 Beltzer, F., and F. Thiebaut, 3065.  
 Beltzer, J., 294, 2991.  
 Belzung, 389, 401.  
 Bemberg, J., 90, 225, 231, 2628, 2640, 3065, 3070.  
 Bemberg, J. P., Aktiengesellschaft, 3017, 3018.  
 Bemelman's L., 1012, 1013, 1027, 1078, 1086.  
 Benary, R., 2730.  
 Bender, C., 709.  
 Bender, O., 693, 697, 709, 852, 1131, 1232, 1302.  
 Bendix, J., see *R. Eisenmann*.  
 Bendix, J., 2413, 2594.  
 Bendixen, P., see *Skindfabriken Unicam, etc.* •  
 Bendixen, P. & Co., see *Skindfabriken Unicam, etc.*  
 Benedek, P., 2639, 2649.  
 Benedict, C., 2513.  
 Benedict, H., 1012.  
 Benedictus, E., 2682, 2684, 2749, 2764.  
 Benedictus, M., 2563.  
 Benedikt, R., and M. Bamberger, 243, 250, 255, 275, 368.  
 Beneke, G., 2976.  
 Bengen, F., see *B. Kühn*. •  
 Bengs, see *A. Fausten*.  
 Benis, L., see *P. Orange*.  
 Benjamin, A., see *Bleachers Association, Limited*.  
 Benjamin, C., 1071, 2388, 2674.  
 Benker, 1368.  
 Benker, F., see *F. Hartmann*.  
 Benker, F., 666, 790, 1210, 1218, 1221, 1234, 1235, 1236, 1297, 1367.  
 Benker, F., and F. Hartmann, 1060, 1210, 1234, 1236, 1239.  
 Benker, F., and H. Lasne, 1232, 1286, 1291.  
 Benker, F., and E. Sorel, 1247.  
 Benna, F., 694.  
 Bennett, 2826, 2836.  
 Bennett, A., see *T. Jebb*.  
 Bennett, F., 2703.  
 Bennett, G., 2999.  
 Bennett, H., 305.  
 Bennett, J., 2415.  
 Bennett, J., and W. Appleyard, 294.  
 Bennett, S., 2581, 2612.  
 Benni, S., 419.  
 Benoid, J., 454.  
 Benoist, 2786.  
 Benoist, F., see *J. Daniel*.  
 Benoist, H., 453.  
 Benoist, H., and L. Graillot, 453.  
 Benoit, 2827.  
 Benout, G., 2460.  
 Benrath, A., 666, 952, 2445.  
 Benrath, P., E. Damm, and O. Stephani, 3053.  
 Bensa, F., see *L. Devauelle*.  
 Bensa, F., 937.  
 Bensaude, S., 466.  
 Bensemann, R., 666, 736, 737.  
 Bensinger & Co., 2705.  
 Bensinger, A., 2744, 2747.  
 Bensinger, C., 2700, 2715.  
 Bensinger, C., and M. Euller, 2893.  
 Bensinger, K., 2611.  
 Benso, W., and B. Jirotko, 294.  
 Benson, C., 2460.  
 Bente, F., 196, 242, 266.  
 Bentham, J., see *W. Kelly*.  
 Bentham, J., 2837.

- Bentley & Jackson, 2242.  
 Bentley, G., 568, 2450.  
 Bentley, H., 2581.  
 Bentley, W., C. Weizmann, and  
   The Clayton Aniline Co., 2517.  
*Bentner, F., see D. Hickie.*  
*Bentner, G., see D. Hickie.*  
 Benton, C., 2460.  
 Benton, O., 2515.  
 Bentzen, 2852.  
 Benwell, T., 2708.  
*Benzinger, L., see F. Tiller.*  
*Benzinger, O., see F. Tiller.*  
 Berard, P., 1589, 2009, 2573, 2605,  
   2680, 2668, 2674, 2686, 2827.  
 Berberich, F., 2561.  
 Berberich, F., and W. Schroder, 2561,  
   2760.  
*Bercegol, R. de, see L. du Hauron.*  
*Bercegol, R. de, see Soc. Anon.*  
   *Plaques Pellicules et Papiers, etc.*  
 Berckelaer, F. van, 1075.  
 Berckzeller, L., 412, 2501.  
*Berend, L., see Chemische Fabriken.*  
 Berend, L., 2769.  
 Berendes, R., and Farbenfabr. F.,  
   Bayer & Co., 2462.  
 Berenguer, E., 84.  
*Berens, H., see M. Hoenicke.*  
 Beresford, W., 2715.  
 Beresin, P., 234, 3065.  
*Berg, J., van den, see J. Boeseken.*  
 Bergall, P., and A. Wülling, 2769.  
*Berge, see H. Schulze-Berge.*  
*Berge, see P. Schulze-Berge.*  
 Berge, A., 294, 478, 1057, 2558.  
 Berge, E., 2528.  
*Berger, see Bleckmann & Berger.*  
 Berger, 2534.  
*Berger, E., see Soc. Anon. Exploita-*  
   *tion des Proc. Becigneul.*  
 Berger, E., 1518, 1714, 2392.  
 Berger, F., 2789, 2791.  
 Berger, H., and A. Ernest, 201, 203.  
 Berger, J., 463.  
 Berger, M., 2704.  
 Berger, W., 463.  
 Bergerat, E., 2697, 2981.  
 Bergerhoff, E., 294, 305.  
 Bergeron, G., and L. L'Hôte, 2452,  
   2453.  
 Berget, A., 294.  
 Bergfeld, L., 699.  
*Bergh, F., see H. Neuberger.*  
*Bergh, F., see E. Taylor.*  
 Bergh, P., and H. Neuberger, 427.  
*Bergheim, Garvey & Gellen, see*  
   *Galvische, etc.*  
 Berghmann, F., 2992.  
 Berghoff, E., 269.  
 Berghoff, V., 1013.  
 Bergier, L., 1899, 2623.  
 Bergius, 699.  
 Bergius, F., 44.  
 Bergkgl. Material Gross Licht, 2651.  
 Berglund, A., 275, 513, 662.  
 Berglund, E., 1100.  
 Bergmann, 826.  
 Bergmann, E., and Junk, A., 319,  
   581, 2324, 2325, 2354, 2355, 2356,  
   2357, 2358, 2359, 2360, 2361, 2362,  
   2363.  
 Bergmann, E., and T. Berliner, 1092.  
 Bergmann, F., 2795.  
 Bergmann Elektrizitäts Werke, 685.  
 Bergner, C., 2711.  
*Bergner, E., see A. Sieverts.*  
 Bergoo, A., 294.  
 Bergonzini, 2782.  
 Bergrath, G., and Burkart, 2972.  
 Bergström, H., 213, 255, 305, 664,  
   2410, 2907.  
 Bergstrom, H., and O. and K. Fager-  
   lind, and E. Almgren, 2410.  
 Bergstrom, H., and B. Lindquist,  
   305.  
 Berguis, 719.  
 Berguis, F., and E. Hägglund, 294.  
 Bergve, E., 990.  
 Bergve, E., and O. Jensen, 1004.  
 Berherou, J., 1633.  
*Beringer, C., see J. Beringer.*  
 Beringer, G., 2741, 2786, 2789, 2790,  
   2791, 2793, 2795.  
 Beringer, J. and C., 1050.  
 Berkaut, A., R. Hendricks and G.  
   Wind, 666, 933.  
 Berkeley, H., 2826, 2836, 2838, 2841,  
   2843.  
*Berkhold, O., see O. Kuchling.*  
 Berkhout, J., 2304, 2985.  
*Berl, E., see G. Lunge.*  
 Berl, E., 29, 43, 55, 98, 504, 562, 567,  
   615, 1100, 1133, 1257, 1329, 1675,  
   1725, 1735, 1909, 2017, 2623, 2625,  
   2628, 2649, 3014, 3021.  
 Berl, E., and R. Butler, 1832, 1833,  
   1834.  
 Berl, E., and M. Delpy, 1663, 1717,  
   2144, 2366.  
 Berl, E., and A. Fodor, 1664, 1680.  
 Berl, E., and A. Innes, 84, 838, 1281.  
 Berl, E., and M. Isler, 2623, 2628,  
   2643.  
 Berl, E., and A. Jurrissen, 1717,  
   2309.  
 Berl, E., and H. Jurrissen, 2311.  
 Berl, E., and R. Klays, 127, 164, 179

- 613, 1662, 1674, 1722, 1735, 1899, 1902  
 Berl, E., and W. Smith, 613, 1717, 1832, 1848, 1854, 1884, 2541, 2753, 3016, 3019, 3020  
 Berlaumont, J., 2617.  
 Berlin Anhaltische Maschinenbau Akt., 936.  
 Berlin Aniline Co., see *Aktien Gesellschaft f. Aniline Fabrikation*  
 Berliner, E., 2735  
 Berliner, T., see *E. Bergmann*  
 Berliner Apparatebau Ges., 959  
 Bernig, G., 2685  
 Bernadac, C., see *E. Jasset*.  
 Bernadac, C., 2753, 2760  
 Bernadmi, L., see *C. Manuelli*.  
 Bernadou, J., see *G. Converse*.  
 Bernadou, J., 2008, 2253, 2944.  
 Bernard, A., and W. Butler, 2564  
 Bernard, C., 418  
 Bernard, C., and L. Barreswil, 1570  
 Bernard, J., see *F. Capitain*.  
 Bernard, J., 2691  
 Bernard, P., 2649  
 Bernard, R., 2627, 2991, 3052.  
 Bernardi, de A., 664  
 Bernardini, L., see *C. Manuelli*.  
 Bernbeck, 2795  
 Bernberg, J., 2999, 3031  
 Berneck, R. von, see *C. Krauss*.  
 Berneck, R. v., see *M. Moest*.  
 Berneck, R. v., 701.  
 Berneck, R., M. Moest, and H. Graf, 702.  
 Bernhard, 2573  
 Bernhard, O., 1600  
 Bernhardt, A., 232.  
 Bernhardt, F., 225, 2581, 2638  
 Bernhardt, O., 2742.  
 Bernoulli, 1086.  
 Bernstein, A., 1899, 2628, 2672, 2760, 3064  
 Bernstein, H., 88, 2646, 2653.  
 Bernstein, R., 1875.  
 Bernthsen, A., 666, 857.  
 Bernthsen, H., 900.  
 Bernutat, A., 1359, 1370, 1388, 1392  
 Berrigan, J., 452.  
 Berry, 2801, 2811, 2816, 2821, 2830  
 Berry, A., 1335.  
 Berry, D., 2677, 2709.  
 Berry, E., see *H. Sulman*.  
 Bert, E., 1033.  
 Bert, P., 709.  
 Bertarelli, E., 3061.  
 Bertelli, B., and A. Rossi, 2588.  
 Bertelsmann, W., 2597.  
 Berthault, 1584.  
 Berthelot, 900, 1095, 1125, 1628, 1802, 2501  
 Berthelot, D., 693, 2369, 2405, 2608  
 Berthelot, D., and H. Gaudechon, 402, 1132, 1714, 1763, 2368, 2466.  
 Berthelot, M., see *A. Riche*  
 Berthelot, M., 325, 348, 475, 666, 693, 709, 712, 715, 716, 717, 721, 847, 904, 953, 954, 1012, 1036, 1057, 1100, 1622, 1708, 1716, 1794, 1846, 1864, 1867, 2386, 2428, 2447, 2448, 2487, 2513, 2533, 3004  
 Berthelot, M., and G. Andre, 325, 1012  
 Berthelot, M., and M. Delepine, 2497, 2498.  
 Berthelot, M., and C. Matignon, 2513  
 Berthelot, M., and J. Ogier, 717, 2497  
 Berthelot, M., and P. Rivals, 2513.  
 Berthelot, M., and P. Vieille, 666, 709, 713, 1632, 1795  
 Berthold, 243  
 Berthon, A., 2883  
 Berthon, R., see *J. Lasky*.  
 Berthon, R., 2881  
 Berthon, R., and J. Gambs, 2876.  
 Berth, P., see *G. Bruni*  
 Bertini, E., 2408, 2423  
 Bertoni, G., and F. Truffi, 2440, 2453.  
 Bertram, 2242  
 Bertram, D., and S. Milne, 294.  
 Bertram, J., and Son, Ltd., see *G. Hull*.  
 Bertram, J., and H. Walbaum, 2513, 2522, 2529.  
 Bertrand, see *Roure-Bertrand*.  
 Bertrand, 2886  
 Bertrand, Gabriel, see *Bertrand, G.*  
 Bertrand, A., 666, 727, 1004, 2385, 2786  
 Bertrand, E., see *A. Talobre*.  
 Bertrand, G., 95, 185, 238, 242, 294, 1335.  
 Bertrand, G., and M. Holderer, 189, 193, 194, 348.  
 Bertrand, P., 2788.  
 Bertsch, 2821, 2823  
 Berwick, 2836  
 Berzelius, 1256, 1567, 1575, 1586, 2328.  
 Berzelius, J., see *P. DuLong*.  
 Berzelius, J., 1012, 1255, 2550.  
 Besanez, see *Gorup-Besanez*.  
 Besauncele, L. de, see *V. Tribouillet*.  
 Besel, R., 2579, 2680.  
 Besemfelder, E., 2156, 2557.

- Besigheimer, see Bremen.*  
*Beskow, K., see A. Ramen.*  
 Beskow, K., 1216, 1250.  
 Bessemer, H., 2585.  
 Bessen, H., 2714.  
 Bessette, F., 2708.  
 Besson and Rosset, 719, 945.  
 Besson, A., 355, 359, 666, 713, 717, 897.  
 Besson, J., 2384.  
 Bessy Freres, 2610.  
 Best, G., 2520.  
 Best, T., 1788, 2674, 2719.  
 Bestwick, G., 2705.  
*Bestwick, J., see J. Byrom.*  
*Bestwick, N., see T. Taylor.*  
 Betelli, C., 2478.  
 Beth, W., 1091.  
 Bethcys, G., 2922.  
 Bethisy, 1640.  
 Bethisy, L., 1781, 2030, 2626, 2649, 2700, 2890.  
 Bethisy, L., L. Fouchard, and E. Vignes, 1783, 2753.  
 Bethisy, L., and Soc. M. Rose et Cie, 1791, 2581.  
 Bettel, W., 2312.  
*Bettenhausen, see Chem. Fabrik. Bettenhausen Marquart.*  
 Bettl, A., 2769.  
 Bettinger, P., 662.  
 Betz, G., 2760.  
 Beucke, and E. Collin, 2651, 3004.  
*Beunal, see H. Risler-Beunal.*  
 Beusterien, O., and A. Baroody, 452.  
*Beutel, see H. von Donnersmarck-Beutel.*  
 Beutel, H., 2651.  
 Beutell, A., and Dafert, 390.  
 Beutinger, E., 2658, 2675.  
*Beutner, see Erhwein.*  
*Beutner, G., see D. Hickie.*  
 Beuve, A. Saint-, and E. Marconnet, 1072.  
 Bevallee, J., and H. Monge, 2630.  
*Bevan, E., see C. Cross.*  
*Bevan, E., see R. Menzies.*  
 Beveridge, J., 277, 305, 806.  
 Bey, S., 238.  
*Beyer, A., see A. Lee.*  
 Beyer, H., 2721.  
 Beyer, O., 2424.  
 Beyersdorff, 2824.  
 Beyling, 2986.  
 Bial, M., 417.  
*Bianchi, G., see N. Tarugi.*  
 Bianchi, J., 2893.  
 Bibb, D., 305.  
 Bibeau, P., 724.  
 Biberfeld, A., 2686.  
 Bichel, 2970.  
 Bichel, C., 1797, 1853, 1923, 2953, 2955, 2965, 2966, 2976, 2984, 2985.  
*Bickford, see Davey.*  
 Bickford, D., 1624.  
 Bickford, D., Spooner, and Pyroxylin Mig. Co., 1874.  
 Bickford, J., 2944.  
 Bickford, J., and Bickford, Smith & Co., 2982.  
 Bickford, J., and G. Smith, 1595, 1787.  
*Biddison, P., see C. Burke.*  
 Bidwell, S., 1012.  
 Bieberstein, R., v., 1637.  
 Biedermann, J., 2769.  
 Biedermann, R., 2918.  
 Biedermann, W., 416, 421, 484.  
 Biedermann, W., and P. Moritz, 345.  
*Biegel, see Norddeutsche, etc.*  
 Biehringer, J., and W. Borsum, 1304.  
 Bielecki, J., and R. Wurmser, 435.  
 Bielefeld, M., 1634, 2253, 2954, 2984.  
 Bienert, 2820, 2903.  
 Bienert, J., 1816, 2010, 2780.  
 Biennait, A., 1623.  
 Bierbauer, C., and L. Finch, 933.  
 Biermann, J., 2610, 2619.  
 Bierry, H., and J. Giaja, 347, 1768.  
 Bierstadt, E., 2900.  
 Biewend, R., 2576, 2728.  
 Bigelow, A., and S. Baldwin, 1109.  
*Bigelow, S., see E. Fouard.*  
*Bigelow, S., see J. Parker-Maynard.*  
 Bigelow, S., 85, 1769, 2404, 2433, 2442, 2501.  
 Bigelow, S., and A. Gemberling, 1769.  
 Bigelow, W., 2480.  
 Biggs, B., and E. Hills,  
 Biggs, T., 2845.  
*Bigon, see Azemba-Bigon.*  
 Bijlert, A. v., 953.  
 Bilief, 2792.  
*Bisotti, C., see A. Azemba-Bigon.*  
 Bilit, B., 79.  
 Billaud and Ballaudof, 1624.  
*Billaudot, see Ballaudof.*  
 Billaudot, 1624.  
 Billet, E., 2416.  
 Billeter, O., 2530.  
 Billeter, O., and B. Wavre, 1335.  
*Billing, A., see P. Diets.*  
 Billing, F., and A. Letalle, 2601.  
*Billinghurst, P., see V. Pigott.*  
 Billiter, 335.  
 Billiter, J., 666, 898.  
*Billon, F., see Soc. Anon. Les Etablissements Poulenc Freres.*

- Billon, P., 294.  
*Billot, see Bellaudof.*  
 Billot, 1624.  
 Billwiller, J., and P. Karrer, 2700.  
 Bilteryst, A., 2792.  
*Biltz, A., see W. Traube.*  
 Biltz, A., 2691.  
 Biltz, H., 666, 1012.  
 Biltz, H., and V. Meyer, 1012.  
 Biltz, K., 2653.  
 Biltz, R., 272.  
 Biltz, W., 64, 65, 411, 469, 2433, 2442, 2457.  
 Biltz, W., and W. Gahl, 1012.  
 Bimmerman, E., 418.  
 Binder, F., 670.  
 Bindewald, H., 2576, 2584, 2613.  
*Bindley, see W. Robinson-Bindley.*  
 Bindley, and Weller, 2992.  
 Bindley, Weller and Duncan, 2766.  
 Bindschedler, E., 1900.  
 Bineau, A., 1012, 1057, 2511.  
*Bingham, E., see H. Jones.*  
 Bingham, E., 1722, 2466.  
 Bingham, E., and T. Durham, 1722.  
 Bingham, G., 2895.  
 Bingham, J., 4588, 2797, 2798, 2821.  
 Binks, C., 1046.  
*Binnecker, F., see L. Meyer.*  
*Binnendijk, A., see J. Boersken.*  
*Bins, A., see Salis, Schwade & Co.*  
 Binz, A., 389, 445.  
 Binz, A., and T. Marx, 445.  
*Binswanger, G., see R. Rhodes.*  
 Biny, 2848.  
 Biot, 389.  
 Biot and Persoz, 389.  
 Biot, J., and J. Persoz, 392.  
 Birch, A., 225.  
*Bircumshaw, L., see G. Barr.*  
 Bird, F., 1335, 2553.  
 Bird, H., 294.  
 Bird-Golding, 2743.  
*Bird, T., see J. Hargreaves.*  
 Bird, T., 518, 2649.  
 Birhans, F., 716.  
 Birkeland, K., 869, 879, 1026.  
 Birkeland, K., and S. Eyde, 852, 857, 863, 867, 871, 872, 878, 879, 880.  
 Birkeland, K., S. Eyde, and A. Pauling, 864.  
 Birkeland, K., and S. Garfield, 869.  
 Birkenstock, P., 328.  
 Birkholz, R., 294.  
 Birkmyre, W., 1010, 1011.  
 Birmingham Metal and Munitions Co., Ltd., and J. Barker, 2955.  
 Birnbaum, K., and C. Wittich, 1057.  
 Biron, E., 2501, 2504, 2505.  
 Bischler, A., and A. Basselli, 2530.  
 Bischof, G., 1012.  
 Bischof, L., 2568.  
*Biscons, M., see A. Izdore.*  
 Bishop, A. and E., 2720.  
*Bishop, E., see A. Bishop.*  
*Bishop, H., see W. Allen.*  
 Bishop, H., 1528.  
 Bishop, S., 2785.  
*Bisset, C., see W. Turner.*  
 Bithell, R., and J. Beck, 1223, 1276, 1282, 1345, 1369.  
 Bitti, W., 2765.  
 Bittner, H., and C. Villedieu, 2593, 2612.  
 Bitto, B. vom, 2432.  
 Bizio, 1630.  
 Bizio, B., 1100, 2550.  
*Bjorkman, see O. Nordenfeldt.*  
 Bjorkman, C., 1631, 1804, 1854, 1855.  
 Bjorkman, E., 1624, 2947, 2973.  
 Blacher, 1635.  
 Blacher, C., and V. Koerber, 1051.  
 Black, 2811, 2816.  
 Black, C., 451.  
 Black, H., 2739.  
 Black, J., 2818.  
 Black, J., and M. Chappell, 1133.  
 Black, W., and Anderson, 2809.  
 Blackledge, C., 2690.  
 Blackmann, B., 270, 305.  
 Blackmore, H., 79, 812, 927, 986, 1033, 1107, 1113, 1119, 1131, 1196, 2416, 2542, 2548, 2566, 2567.  
 Bladen, W., 2583, 2614.  
 Blagburn, C., 684, 689.  
 Blaile, A., 2442, 2480.  
 Blain, 2853.  
 Blair and Adams, 2831.  
 Blair, Campbell and McLean, 2141.  
 Blair, D., 2721.  
 Blair, H., 1030, 1275.  
 Blair, H. & Co., 1365.  
 Blair, H., and H. Watson, 1010.  
 Blair, T., 2897, 2917.  
 Blair, T., and European Blair Camera Co., 2890.  
 Blair, T., and S. Waterman, 2897.  
 Blair, W., 2828, 2832, 2834, 2863, 2900.  
 Blaisdell, F., 2859, 2897, 2903, 2918.  
 Blaise, E., 2459.  
 Blaise, E., and G. Blanc, 2513.  
*Blake, D., see J. Hyatt.*  
 Blake, D., 2383, 2719, 2723.  
*Blake, E., see K. Huleit.*  
*Blakeley, see Oldroyd.*

- Blakeman, W., 2620.  
*Blanc*, see *H. LeBlanc*.  
*Blanc*, see *M. LeBlanc*.  
 Blanc, 2836.  
 Blanc, C., 3023.  
*Blanc, G.*, see *F. Blaise*.  
*Blanc, G.*, see *L. Bouveault*.  
 Blanc, G., 2513, 2520.  
 Blanc, J., 1002, 1093.  
 Blanc, M. Le, 2432.  
*Blancels, L. des*, see *V. Henri*.  
*Blanche, T.*, see *F. Folyet*.  
 Blanchard, 2860.  
 Blanchard, E., 2627.  
 Blanchard, W., 2805, 2823.  
 Blanchere and Penito, 2020.  
 Blanchere, H. de la, 2788, 2808, 2818.  
*Blanchet, R.*, see *J. Liebig*.  
*Blanchiment, Teinture et Impression*  
   see *Societe Anonyme Blanchiment,*  
   *Teinture et Impression*.  
 Blanchin, 1781.  
 Blondeau, A., 2670.  
*Blanch, E.*, see *T. Pfeiffer*.  
 Bland, J., and E. Gelligan, 662.  
 Blandy, A., 2601.  
 Blane, 2825, 2857.  
 Blanksma, J., 2408, 2991, 3013.  
 Blanquard-Evrard, 2797, 2920.  
 Blarez, C., 1332, 2571.  
*Blasweiler, T.*, see *E. Heuser*.  
 Blatt, G., 3046.  
 Blattner, N., and J. Brasseur, 1056.  
 Blau, F., 1212, 1243.  
 Blau, H., 264, 685.  
*Blaxall, F.*, see *Macfayden*.  
 Bleachers Association and Higgins,  
   619.  
 Bleachers' Association Limited, A.  
   Benjamin and R. Hübner, 178.  
 Blech, L., and E. Tyborowski, 2637.  
*Blecher, E.*, see *C. Distler*.  
 Bleckmann & Berger, 2362.  
 Bleckrode, L., 709, 717, 1057, 1100,  
   1620.  
 Bleiburger, G., 2392, 2539.  
 Bleier, O., 686.  
 Bleier, O., and L. Kohn, 1012.  
*Blei u. Zinkfabrikation zu Stolberg,*  
   see *A. G. für Bergbau*.  
 Blenk, J., 2601.  
*Blich, J.*, see *F. Forster*.  
 Blich, J. and F. Foerster, 670.  
 Blich, 2743.  
 Blieberger, Weber & Co., 2393.  
 Blight, W., 2724.  
*Blin, A.*, see *L. Boule*.  
 Blinkhorn, J., 1231.  
 Blinkhorn, W., 1075.  
*Bliss, H.*, see *F. Matthews*.  
 Blitz, A., 2721.  
 Bloch, A., 569, 1879.  
*Bloch, J.*, see *N. Bloch*.  
 Bloch, L., 1034, 2465.  
 Bloch, N., and J., 450.  
 Bloch-Pimentel, E., 92, 234, 235.  
 Blochman, 2784.  
 Blochmann, R., 504.  
 Block, L., 1006.  
 Blockey, F., 63.  
 Bloede, V., 2903.  
 Bloesch, K., 305.  
*Blois*, see *DeBlow, L.*.  
*Bloman, J.*, see *W. Krug*.  
 Blumen, J., 2255, 2258.  
 Blumen, J., and H. Aspinwall, 2015.  
*Blond, N. Le*, see *N. Le Blond*.  
 Blondeau, 1641.  
 Blondeau, C., 1100, 1509, 1642,  
   1817, 1911.  
 Blondeau, L., 1104.  
 Blondeau de Carolles, J., 96, 133, 201.  
 Blondel, 113.  
*Blondel, F.*, see *L. Lefevre*.  
 Blondel, E., 119, 126, 667, 2418.  
 Blondel, J., and A. Chopin, 2895.  
 Blondlot, N., 408, 1339.  
 Bloom, J., 1005, 2957.  
 Blot, 2866, 2885.  
 Blount, B., 553.  
 Blount, G., 1012.  
*Blowski, A.*, see *J. Blowski*.  
 Blowski, A. and J., 1087.  
*Blowski, J.*, see *A. Blowski*.  
 Blowski, J., 1308.  
 Blowski, J. and A., 1308.  
 Bloxam, 1339.  
 Bloxam, A., 294, 1012.  
*Bloxam, W.*, see *F. Thomas*.  
 Blucher, H., and E. Krause, 2720,  
   2766.  
 Bluemel, 2086, 2688.  
 Bluemel, C. F. and E., 2698.  
*Bluemel, E.*, see *C. Bluemel*.  
*Bluemel, E.*, see *S. Learoyd*.  
 Bluemel, E., 2677.  
*Bluemel, F.*, see *C. Bluemel*.  
 Blümner, 1020.  
 Blutcher, H., and E. Krause, 2755.  
 Blüthgen, V., 2681, 2690, 2747.  
*Blum, A.*, see *H. Mock*.  
 Blum, J., 2613, 2682.  
 Blum, L., 1012.  
*Blume, G.*, see *M. Busch*.  
 Blumel, E., 2686.  
 Blümenberg, H., 1063.  
*Blumenthal, A.*, see *S. Lewin*.  
 Blumenthal, T., 450.

- Blumenwitz, M., 454.  
 Blumer, A., 2599.  
 Blumer, E., 235, 415, 421, 428.  
 Blumer, L., 2769.  
 Blumm, V., 2682.  
*Blundell, see C. Weld-Blundell.*  
 Blyth, E., 2956, 2976.  
 Blyth, F., and A. Suthby, 2674.  
 Blyth and Southly, 293.  
 Blythe, W., and E. Kopp, 1011.  
 Boake and Boake and Roberts & Co., 3048.  
*Boake, A., see G. Bcôteau.*  
*Boake, A., see T. Burrans.*  
*Boake, A., see W. Giles.*  
 Boake, A., and G. Roberts, 294.  
 Boake, A., Roberts & Co., and T. Durran, 2500.  
 Boake, A., Roberts & Co., Ltd., T. Durran, and W. Ellis, 2509.  
*Board, A., see W. Elborn.*  
 Board, A., and A. Ling, 469.  
*Board, A., see H. Milligan.*  
 Roas, F., 404.  
 Boca, P., 2980.  
 Bochers, W., R. Schenk, and F. Thomas, 1080.  
 Bochum-Lindener Zundwaren und Wetterlampenfabrik Koch, C., 2979.  
*Bock, J., see C. Bohr.*  
 Bock, J., 2589, 3060.  
 Bockenhagen, W., 2553.  
 Bocker, O., and R. Schmidt, 945.  
*Bocker, R., see O. Schmidt.*  
 Bockett, J., 2914.  
*Bodart, see Lies-Bodart.*  
 Boddener, K., and B. Tollens, 367.  
 Bode, 1250, 2306.  
 Bode, F., 1012, 1025, 1100, 1210, 1230, 1276, 1284, 1318, 1343, 1345, 1382.  
 Bode, F., and Scheurer-Kestner, 1082.  
 Bodenstein, M., 667, 693, 694, 704, 1100, 1134, 1261.  
 Bodenstein, M., and Dietz, 2508.  
 Bodenstein, M., and C. Fink, 1106, 1113, 1134.  
 Bodenstein, M., and F. Kranendieck, 1126.  
 Bodenstein, M., and W. Pohl, 1134, 1138.  
 Bodenstein, P. H., X.  
 Bodin, A., and J. Efront, 664.  
 Bodroux, F., 2498, 2501.  
 Bodtker, J., 2860.  
 Boeckmann, 2747.  
 Boeck, J., 2743.  
*Boecker, see Meissel.*  
*Bockmann, see Holbach & Boeckmann.*  
 Boeckman, 735.  
 Bockmann, F., 1056, 2658, 2674, 2757.  
 Boeddingheus, W., 2610.  
 Bodecker, 2781.  
 Bodecker, C., 2781, 2784.  
 Boedke, P., 2405.  
*Bodlander, G., see J. Traube.*  
 Bodlander, G., and R. Fittig, 84.  
 Bodlander, G., and K. Koppem, 1100, 1134.  
 Bodlander, G., and W. Pohl, 1113.  
 Bodlander, G., and J. Traube, 2475.  
 Boedtker, E., 2443.  
 Bohler, C., 2778.  
 Boehler, W., 1632.  
*Boehm, A., see J. Falkenstein.*  
*Boehm, A., see J. Kallwoda.*  
 Boehm, C., 3076.  
 Bohm, C., 524, 1122, 2596.  
 Boehm, J., 393, 396, 400, 1030.  
 Boehm, W., 2501.  
 Boehme, R., 2572, 2769.  
 Bohmer, A., 454.  
 Bohmer, C., 713.  
 Bohmer, L., 2614.  
 Boehringer, C. F., & Soehne, 1057, 1303, 2457, 2527, 2531, 2543, 2544, 2649, 2769, 3023.  
*Boeing, E., see K. Walter.*  
 Boeng, L., 1270.  
*Bollert, H., see C. Krug.*  
*Bolsing, F., see A. Verley.*  
*Boeing, E., see K. Walter.*  
 Boermt, K., 2760.  
 Boerne, A., 213, 456, 504.  
 Bornier, H., 2618, 2769.  
 Boerner, R., 2863, 2909.  
 Boesch, B., 3006.  
 Boeseken, J., J. van den Berg, and A. Kerstjens, 192, 414, 415, 2992.  
 Boeseken, J., G. Tergau, and A. Binnendijk, 115.  
 Boeseken, J., and H. Waterman, 2411.  
*Boespflug, E., see R. Guilleminot.*  
 Boessneck, P., 2992.  
*Boeters, O., see R. Wolfenstein.*  
 Boeters, O., and R. Wolfenstein, 985, 992.  
*Bottger, see Schonheim.*  
 Boettger, I., 74, 1574, 1577, 1578, 2792, 2813, 2925.  
 Boettger, O., 397.  
 Boettger, R., 4, 1581, 1616, 1886, 1890, 2383, 2450, 2473, 2501, 2510, 2574.  
 Boetticher, H., 2722.



- Bogaert, see van den Bogaert.*  
 Bogajawlski, A., and V. Humnicki, 2418.  
 "Bogatir," *see Societa Bogatir.*  
 "Bogatyr" Society for the Manufacture and Sale of Rubber Goods and I. Ostrowmislensky, 2485, 2501.  
 Bogdan, S., *see P. Guye.*  
 Bogdan, S., *see A. Joquerod.*  
 Bogdan, S., 953.  
 Bogert, M., 2618.  
 Bogitch, B., *see LeChatelier.*  
 Bognée, A., 2903.  
 Bogomolez, J., 2449, 2452.  
 Bogrodski, A., 719.  
 Boguski, J., 717, 2454.\*  
 Boguski, J. and W. Jakubowski, 1012.  
 Bogusky, L., *see D. Mendejeff.*  
 Bohl, H., 1573.  
 Bohm, L., 294.  
 Bohn, R., 2769.  
 Bohr, C., 667.  
 Bohr, C., and J. Bock, 667.  
 Bohre, A., 1518.  
 Boice, J., 2537.  
 Boidin, A., *see A. Collette.*  
 Boidin, A., 474.  
 Boig, J., 2728.  
 Boileau, A., 666.  
 Boillot, A., 1012.  
 Boissieu, P., 1222.  
 Boisson, A., 2559, 2628, 3068.  
 Boissonas, 2809, 2811, 2819.  
 Boistesselin, and Hermand, 2805.  
 Boistesselin, H., *see Soc. Anon Nouvelle L'Oyonnais.*  
 Boistesselin, H., and C. Gay, 79, 2646.  
 Boistesselin, H., and J. Verny, 2519.  
 Boiteau, G., *see A. Brochet.*  
 Boiteau, G., 2501.  
 Boiteau, G., A. Boake Roberts & Co., and T. Durrans, 3002.  
 Boivin, 2829, 2830, 2831, 2833, 2834, 2900.  
 Boivin, E., 2593, 2825, 2826, 2834, 2837, 2841, 2843, 2846.  
 Bokorrey, T., 344, 395, 1639, 1698, 1761, 1802, 2411.  
 Bokorny, T., *see O. Löw.*  
 Bolam, T., S. Barnard and A. Newman, 2895.  
 Bolas, 2903.  
 Bolas, T., *see Self Developing Plate Co.*  
 Bolas, T., 2421, 2674, 2863, 2895, 2909.  
 Bolas, T., and Self Developing Plate Co., 2675, 2693, 2694.  
 Bold, J., *see J. Glover.*  
 Bolin, P., 667, 933.  
 Bolle, J., and P. Guye, 2489, 2490.  
 Bollert, H., *see C. Krug.*  
 Bolley, P., 115.  
 Bolling, J., 662.  
 Bollmann, 2812, 2830.  
 Bollmann, F., 2806.  
 Bollone, 2847.  
 Boltmann, 1809.  
 Bolton, *see Sayce.*  
 Bolton, *see Sladdon.*  
 Bolton, 1624, 2786, 2825, 2834, 2840, 2851.  
 Bolton, E., and W. Bacon, 2762.  
 Bolton, F., 2981.  
 Bolton, G., *see J. Flint.*  
 Bolton, W., *see B. Sayce.*  
 Bolton, W., and B. Sayce, 2798, 2839.  
 Bolton, W., 666, 2385, 2799, 2802, 2803, 2867, 2841, 2843, 2844, 2845, 2853, 2866, 2868, 2890, 2902, 2903.  
 Boltzmann, L., 709, 1012, 1057, 2487.  
 Bolviano, L., and V. Paolini, 2520.  
 Bolz, C., 747.  
 Bombin, *see Hiller-Bombin.*  
 Bombrini, Parodi-Delfino, *see D. Chiaraviglio.*  
 Bomfrid, 2792.  
 Bomhard, C., and Desgrez, 667.  
 Bonar, J., 294.  
 Bonardi, J., 1046.  
 Bonavita, J., *see E. Thomas.*  
 Bonavita, J., 3076.  
 Bonbon, A., 225.  
 Bond, F., 1087.  
 Bond, L., 2610.  
 Bondet, L., 2715, 2754.  
 Bondièvenne, J., *see A. Alombert.*  
 Bondonneau, 390, 413.  
 Bondonneau, L., 391, 409, 471, 478.  
 Bondonneau, V., and A. Foret, 409.  
 Bondzynski, S., and K. Panek, 1012.  
 Bone, R., 2569.  
 Bone, W., and H. Coward, 423.  
 Bone, W., and H. Davies, 2408.  
 Bone, W., and D. Jerden, 423.  
 Bonet, M., 1593, 1701, 1757.  
 Boneyds, L., 74.  
 Bong, E., 1301.  
 Bonge, W. v., *see B. Rassow.*  
 Bonge, W. v., 1666.  
 Bonhoeffer, O., *see F. Hoffmann.*  
 Bonhoeffer, O., H. Guntrum and Farb. v. Bayer & Co., 3016.  
 Bonis, A., 2482.

- Bonjean**, 1571, 1573.  
**Bonjean**, J., 1698.  
**Bonna**, A., A. LeRoyér and P. van Berchem, 705.  
**Bonnafont**, 2786.  
**Bonnafort**, J., 2788.  
 • **Bonnaud**, J., see E. Vogel.  
**Bonnaud**, J., 2578, 2617, 2749, 2888, 2906.  
**Bonneau**, L., and V. Hasenfratz, 2556.  
**Bonner**, W., 2670, 3045, 3049, 3081, 3083.  
**Bonnet**, see Soc. *Thirion*.  
**Bonnet**, 391.  
**Bonnet**, J., see L. Müller.  
**Bonnet**, M., 3079.  
**Bonneville**, H., 2881.  
**Bonneville**, J., 1851, 1854, 2801, 2803.  
**Bonneville**, H., 2603.  
**Bonnier**, G., and L. Mangin, 397.  
**Bonnieres**, see Soc. *de Lûle*.  
**Bonnington**, A., and H. Akers, 933.  
**Bonsdorff**, W., 84.  
**Bonstein**, E., 958.  
**Bonte**, see *Dellanoy & Bonte*.  
**Bonte**, see Soc. *Dellanoy*.  
**Bontempi**, A., 960.  
**Bonwit**, 3051.  
**Bonwitt**, see E. *Friedmann*.  
**Bonwitt**, G., 2394, 2658, 2757, 2760, 2895, 2897, 3029, 3051, 3080.  
**Bonz**, A., 2431, 2441, 2501.  
**Boodle**, 243.  
**Boorne**, W., 2909.  
 • **Boot**, J., 843.  
**Booth**, J., see W. *Rockliff*.  
**Booth**, P., 736.  
**Booth**, W., 450, 2713, 2715.  
**Booth**, W., and A. Bell, 450.  
**Boral**, see S. *Schwabe & Co.*  
**Boral**, R., see *Salis, Schwabe & Co.*  
**Borcher**, 843.  
**Borchers**, see *Stolberg*.  
**Borchers**, F., 1086.  
**Borchers**, R., see W. *Borchers*.  
**Borchers** Bros., 839.  
**Borchers**, W., see F. *Wolf-Burchhardt*.  
**Borchers**, W., and E. Beck, 705.  
**Borchers**, W. and R., 956.  
 • **Borchers**, W. and P. *Monmartz*, 956.  
**Borchers**, W., and H. *Pedersen*, 1076.  
**Bordas**, see *Girard*.  
**Bordas**, 3071.  
 • **Borde**, E., 2826, 2832, 2834.  
**Bordeau**, 2808.  
**Bordeaux**, J., 2893.  
**Bordet**, L., see C. *Bardy*.  
**Bordier**, 195.  
**Bordier**, H., 412.  
**Borgi**, U., and T. *Sotgia*, 1051.  
**Borgineyer**, C., 2389, 2495.  
**Borias**, E., 790.  
**Borie**, 2830.  
**Borisch**, P., 2513.  
**Borisoff**, M., see A. *Saposchnikoff*.  
**Borile**, see Soc. *Dellanoy et Borile*.  
**Borland**, see *Johnson-Barland*.  
**Borland**, 2817.  
**Borland**, W., 2252, 2944, 2947, 2948.  
**Borlinetto**, 2808, 2832.  
**Borlinetto**, L., 2863.  
**Born**, M., 688.  
**Born**, S., and J. *Nelson*, 504.  
**Bornemann**, 2616.  
**Bornett**, S., see G. *de Becht*.  
**Bornett**, S., 1413.  
**Bornett**, S. & Co., 1345.  
**Borntraeger**, B., 2478.  
**Borntrager**, H., 1212, 1339, 2457.  
**Borodin**, A., 2450, 2472.  
**Borodin**, J., see A. *Famintzin*.  
**Borras**, A., and Societe Anonyme  
     Borras, 461.  
**Borrmann**, see *Kassling*.  
**Borrmann**, R., 2782.  
**Borrot**, F., 2674.  
**Borrot**, P., 2674.  
**Borrot**, P. and S., 2754.  
**Borrot**, S., see P. *Borrot*.  
**Borsari**, E., 958.  
**Borsche**, W., and W. *Lange*, 2534.  
**Borsig**, A., 1276.  
**Borst**, 2780.  
**Borsum**, W., see J. *Biehlinger*.  
**Bortree**, M., 2709.  
**Boruki**, L., 2454.  
**Borzner**, A., 336.  
**Borzykowski**, B., 71, 2389, 2553, 2612, 2629, 2643, 2653, 2682, 2713, 2749, 2859, 2800, 2893, 2897, 3014, 3051, 3055, 3056, 3058, 3068, 3075, 3078.  
**Bosaeus**, E., 294.  
**Bosc**, A. du, 3041.  
**Bosch**, C., see K. *Heresheimer*.  
**Bosch**, see Van den *Bosch*.  
 • **Bosch**, van den A., see F. *van den Bosch*.  
**Bosch**, van den, see *Gocher Oehmühle*.  
**Bosch**, C., see J. *Machtloff*.  
**Bosch**, C., 896, 911, 946.  
**Bosch**, C., A. *Mittasch*, and C. *Beck*, 939.  
**Bosch**, C., and A. *Mittasch*, 927.  
**Bosch**, van den F., and A., and O.

- Müller, 110.  
*Bosch, K(arl), see Bosch, C(arl).*  
 Bose, C., 2712.  
 Bose, E., and B. Clark, 2445.  
 Bosinelli, G., 1036.  
 Bosnische Electricitaets-Aktien Gesellschaft, 3001, 3002.  
 Bosse, F., 2436.  
 Bosshard, E., and W. Grob, 1008.  
 Bost, W., 2000.  
*Bostock, B., see F. Knecht.*  
 Boston, H., and R. Combe, 2601.  
 Boston Artificial Leather Co., 2605.  
 Boston Fast Color Eyelet Co., 2704.  
 Bostwick, J., 2509.  
 Boswell, M., and J. Gooderham, 2484.  
 Boswick, T., 2475.  
 Bosworth, C., 2695, 2696.  
 Botazzi, F., and C. Victoroff, 482.  
 Both, W., 2922.  
 Bothamley, C., 2872.  
 Bothamly, 2874.  
 Bothmann, 2801.  
*Botrell, see Clement-Botrell.*  
 Botrelle, F., and G. Fretard, 1780, 2754, 3040.  
 Bottazzi, F., 435.  
*Bottcher, W., see E. Schurmann.*  
 Bottler, 2670.  
 Bottler, C., 2623.  
 Bottler, M., 2569, 2570, 2571, 2581, 2691, 2769.  
*Bottomley, see Harrison.*  
 Bottomley and Paget, 1361.  
 Bottomley, F., 1363.  
 Bottone, 2818.  
 Bottone, S., 2820, 2914.  
*Boubnoff, N., see F. Briner.*  
 Bouborts, G., 2658.  
*Boucart, see Gros.*  
 Boucart, P., 230.  
 Bouche, M., 2588.  
 Bouchardat, 2791, 2792.  
 Bouchardat, C., 2430.  
 Bouchardat, G., 419, 2433, 2511.  
 Bouchardat, G., and J. Lafont, 2519, 2526.  
 Bouchardat, G., and Oliviero, 2488.  
 Bouchardat, G., and Tardy, 2513.  
*Bouchary, see Gross.*  
*Bouchardy, see F. Gross.*  
*Bouchardy, see P. Gross.*  
 Bouchaud-Praceiq, 607.  
 Bouchaud-Praceiq, E., 213, 1924, 2553, 2640, 2981, 3058.  
 Bouchaud-Praceiq, J., 986, 1785, 1930, 2345.  
 Boucher, 2424.  
*Bouch, J., see A. Schmersahl.*  
 Boucquey, G., 88.  
 Boude et Fils, 1033.  
 Boudin, G., 3065.  
 Bouffe, 2649.  
 Bouhard & Loyer, 1122.  
 Bouhon, L., 1388.  
 Bouillette, L., and J. Hyvelin, 2866.  
 Bouillon-Lagrange and Vauquelin, 397.  
 Bouillot, C., 2623, 2629.  
 Bouis, M., 2482.  
 Boulais, G., and P. Lefevre, 294.  
 Boulanger, 2418.  
 Boularan, A., 2896.  
*Boulard, H., see Soc. d'Exploitation des Processus, H. Boulard.*  
 Boulard, H., 2424.  
 Boulc, L., A. Blin and E. Testu, 2720, 2749, 2908.  
 Boullier, 3076.  
 Boullier, J., 2595, 2623, 2625.  
 Boullier, J., and J. Lafais, 88, 2649.  
 Boullier, M., 1909.  
 Boulst, A., 1082, 2531, 2697, 3065.  
 Boulton, S., 1011.  
*Bouquet, see J. Ebelman.*  
 Bourau, 2649.  
 Bourbon, J., and P. Cassier, 566, 1879.  
*Bourcart, P., see F. Gros.*  
 Bourcart, P., 227, 3065.  
 Bourcet, R., 607.  
 Bourchardat, 2791.  
 Bourderel, M., 667.  
 Bourdet, M., 2517.  
*Bourdiol, see M. Guichard.*  
 Bourdon, M., 1241.  
 Bouret, A., and F. Verbiese, 328, 606, 1878.  
 Bourgeois, J., Nieuvars, E., and V. de Clercq, 2682.  
 Bourgtrel, G., 945.  
 Bourgerel, M., 933.  
 Bourgoïn, B., 2985.  
 Bourgoïn, E., 667.  
 Bourguignone, A., 2445.  
 Bourmumeau, J., 2578.  
 Bourne, S., 2834.  
 Bourne, T., 2698.  
*Bourquelot, E., see M. Bridel.*  
*Bourquelot, E., see H. Herissey.*  
 Bourquelot, E., 348, 390, 400, 416, 417, 1848, 2789.  
*Bourquin, A., see E. Jabulowsky.*  
 Boursin, J., 2026.  
 Bourmumeau, J., 2691.  
 Bousfield, B., and Nobel's Explosives Co., 896.  
 Bousfield, C., 159f.

- Bousfield, G., 2982.  
 Bousfield, J., 2760.  
 Bousfield, R., and T. Lowry, 2998.  
 Bousfield, W., 952.  
 Bousfield, W., and T. Lowry, 2998.  
 Bousfield, W., and Nobel's Explosives Co., 719.  
 • *Boussac, see H. Kratz-Boussac.*  
 Bousse, E., 1073, 1078.  
 Boussinesq, J., 1722.  
*Boussingault, see Gaudichaud.*  
 Boussingault, 667.  
*Boussingault, J., see J. Dumas*  
 Boussingault, J., 394.  
*Boutwood, C., see G. Browning.*  
 Boutwood, C., 2725.  
 Bouty, E., 952, 1057.  
 Bouveault, L., 2462, 2516, 2520.  
 Bouveault, L., and G. Blanc, 2415, 2459, 2462, 2481, 2496, 2534.  
 Bouveault, L., and R. Locquin, 2401.  
 Bouvier, 2473, 2786.  
 Bouzat, 80, 81.  
 Bovard, W., 34.  
 Bovey, 2812.  
 Bovey, W., 2848.  
*Bowack, D., see J. Remington.*  
 Bowack, D., R. Heald, and A. Davis, 294.  
*Bowden's Patents Syndicate, Ltd., E., see J. Triggwell*  
 Bowen, F., 2947.  
*Bowen, J., see F. Richardson.*  
 Bowen, S., 1360.  
*Bower, C., see E. Steele.*  
 Bower, W., 1549.  
 • Bowers, W., 2992.  
 Bowick, T., 2414.  
*Bowles, P., see Titanine, Ltd*  
 Bowley, A., 2688.  
 Bowly, F., 2415, 2418.  
 • *Bowman, see Monie.*  
 Bowman, 52, 55, 64, 506, 507.  
 Bowman, F., 490, 531, 2991.  
 Bowmann, F., and W. Scott, 667, 977.  
 Boy, P., 294.  
 Boyd and Durant, 1076.  
*Boyd, H., see C. Burke.*  
*Boyd, H., see G. Oberfell.*  
 Boyd, M., 2564.  
 Boyd, R., 2695.  
*Boyd, D., see I. Lamb.*  
*Boyd, D., see M. Lamb.*  
*Boyd, W., see W. Gale.*  
 Boydin, A., 2419.  
 Boydt, J., 1011.  
 Boyer, E., 736.  
 Boyer, J., 2674.  
 Boyeux, A., 226.  
 Boyeux, A., and Societe Lizier Buffet et Fils, 2645.  
 Boyeux, J., 2651.  
 Boyon, M., 2765, 2769.  
 Boys, 1361.  
 Boys, C., 2897.  
 Brabrook, G., 78, 2704.  
 Bracher, I., 2619.  
 Bracher, L., W. Collyer and J. Cassels, 2587.  
 Brachter, W., 2639, 3065, 3072.  
 Brackelsberg, C., 1063, 1074.  
 Braconnot, I., 133, 195, 200, 201, 242, 326, 389, 1579, 1843, 1903, 2924.  
 Braconnot, H., 95, 194, 1567, 1568, 1569, 1570, 1571, 1572, 1816, 1817, 2550.  
 Bracq, 1073.  
 Bracq, E., 1076.  
 Bracq-Laurent, E., 1073.  
 Bracq-Laurent, E., and R. Moritz, 1072, 1079.  
 Bradbook, G., 70.  
 Bradburn, W., 1011.  
 Bradbury, and Hirsch, 667.  
 Bradbury, J., 1369.  
 Bradbury, R., 2482.  
 Bradford, L., 1081, 1082.  
 Bradford, R., and G. Rawlins, 2585.  
*Bradford Dyers' Association, Ltd., see P. Kraiss.*  
*Bradford Dyers' Assoc., Ltd., see J. Wilkinson.*  
 Bradford Dyers' Association, Ltd., 2617.  
 Bradforde, G., 2868.  
 Bradley and Lovejoy, 667, 685.  
 Bradley, 3050.  
 Bradley, B., 1111, 1123.  
 Bradley, C., 685.  
 Bradley, C., and D. Lovejoy, 685.  
 Bradley, F., 2585.  
*Bradley, P., see Aircraft Fireproofing Corporation.*  
 Bradshaw, G., 2918.  
 Bradshaw, R., and J. Lyell, 2881.  
 Brady, C., 2744, 3062.  
*Brachmer, see Fischer.*  
 • Bräuer, A., 2992.  
 Bräuning, 1233, 1276, 1338.  
 Bräunlich, F., 1307.  
 Bräutigam, 243.  
 Bragg & Moritz, 1073.  
 Braham, A., 2881.  
 Brainard, 2786.  
 Braine, L., 2591.  
*Braker, H., see W. McKensie.*

- Bramco Ltd., 2702.  
 Bramco Ltd., and Sturmev, 2703.  
 Brame, C., 1012.  
 Brame, J., 2349, 2350, 2362.  
 Bramwell, E., 1071.  
 Bran, F., *see* F. Haber.  
 Brand, C., 294.  
 Brand, C., and J. Merrill, 294.  
 Brand, J., *see* C. Moxon.  
 Brand, J., 43, 1040, 2725.  
 Brand, K., *see* K. Elbs.  
 Brand, K., 3011.  
 Brand, R., 2728.  
 Branddeger, 100.  
 Brande, W., 1629.  
 Brandege, M., *see* W. Brushel.  
 Brandegger, 100.  
 Brandel, F. de, and A. de Baudry  
   D'Asson, 2459.  
 Brandenberger, E., 3074, 3075, 3078.  
 Brandenberger, J., 79, 2629, 2643,  
   2682, 2893, 2898, 3008, 3071,  
   3079, 3081, 3082.  
 Brandenburg, F., *see* Traine & Hell-  
   mers.  
 Brandenburg, F., 1090, 1218, 1358,  
   1362.  
 Brandenburg, H., and A. Weyland,  
   802.  
 Brandes, 243.  
 Brandes, H., 2470.  
 Brandl, F., and de Baudry D'Asson,  
   2405.  
 Brandt, 2859.  
 Brandt, C., 102, 2860.  
 Brandt, C., 2600, 2701, 2745.  
 Brandt, R., 607, 688.  
 Brandt, W., 2992.  
 Brandt, W., and F. Root, 2412.  
 Brandts, R., 226.  
 Branel, F., *see* H. Roger.  
 Brangier, *see* Magnier.  
 Brangier, A., *see* P. Magnier.  
 Brangier, P., *see* P. Magnier.  
 Brante & Co., 843, 1291, 2992.  
 Brasch, W., 2482.  
 Brasch, W., and E. Friedmann, 2482.  
 Brassard, H., 227, 230.  
 Bragse, L., 126, 473.  
 Brasseur, C., 2876, 2881.  
 Brasseur, J., *see* N. Blattner.  
 Brauer, A., 3004.  
 Brauer, E., *see* W. Ostwald.  
 Brauer, E., 843, 985, 986, 991.  
 Brauer, M., 442.  
 Brauk, E. von, 2963.  
 Braun, 2808.  
 Braun, C., 294, 504.  
 Braun, F., 1058.  
 Braun, H., *see* H. Harier.  
 Braun, H., 2688.  
 Braun, v. J., 667, 850.  
 Braun, K., 1877.  
 Braun, M., *see* J. Koenig.  
 Braun, M., *see* J. Häsenaumer.  
 Braun, P., 2607, 2608, 2609.  
 Braunback, F., 469.  
 Brauner, 2841.  
 Brauns, D., *see* C. Hudson.  
 Brauns, D., 504.  
 Brauns, R., 1013.  
 Braunstein, J., 1930, 2711.  
 Braunstein, J., and C. Waller, 1830.  
 Brautlecht, C., *see* T. Osborne.  
 Bravetta, and Parozzani, 1715.  
 Bravetta, E., 2969.  
 Bray, M., 2709.  
 Bray, W., 2695.  
 Brazzola, 2783.  
 Brearley, J., *see* R. Threlfall.  
 Breazeale, J., *see* F. Cameron.  
 Brebisson, *see* Labord.  
 Brebisson, 2813, 2825, 2831, 2832,  
   2834.  
 Brebisson, A. de, 2812, 2826, 2920.  
 Brech, L., *see* D. Rosenblum.  
 Brech, L., *see* J. Rosenblum.  
 Brech, L., 660.  
 Brecht, H., *see* C. Hemje.  
 Brecht, T., 2691.  
 Breckler, A., 2424.  
 Brecknell, W., 2695.  
 Breckner, A., 2783.  
 Bredig, G., 667, 1133, 3004.  
 Bredig, G., and S. Carter, 3004.  
 Bredig, G., and W. Frankel, 931.  
 Bredig, G., W. Fraenkel and E.  
   Wilke, 667, 926.  
 Bredig, G., and R. Müller, 2501.  
 Bredschneider, 1589.  
 Bredt, J., 2516, 2520.  
 Bredt, J., and K. Burkheiser, 2516.  
 Bredt, J., and W. Perkin, 2520.  
 Bredt, J., F. Rochussen, and J.  
   Monheim, 2513.  
 Bredt, J., and M. de Rosenberg,  
   2513, 2534.  
 Bredt, J., and R. Rübel, 2513.  
 Bredt, O., & Co., 425, 428.  
 Bregeat, J., *see* A. Daniel.  
 Bregeat, J., 2558.  
 Brehmer, F., *see* F. Fischer.  
 Breinl, A., 2723, 2725.  
 Breinl, F., and C. Hanofsky, 113,  
   115.  
 Breithaupt, A., 1013.  
 Breitschuh & Vorbrodt, 2560.  
 Brelas, G., *see* R. Pictet.

- Bremberg, A., 2952.  
*Bremberg, A.*, see *W. Beardmore & Co.*  
 Bremen-Besigheimer Oelfabriken, 918.  
*Bremer*, see *Minck & Bremer Baumwollseiden Aktiengesellschaft.*  
*Bremer Baumwollseidenwerke*, see *P. Minck*  
 Bremer Trockenplatten Fabrik B Klatte, 2893, 2902  
 Bremond, F., 2658  
 Breneman, A., 667.  
 Brenner, R., 391.  
 Brentini, P., 2563  
 Breton, H., and M. Baker, 1304  
*Breslauer, A.*, see *K. Hagendorf*  
 Breslauer, F., 2597  
 Breslauer, J., and A. Pietet, 2769.  
 Breslauer, M., 2561  
 Bresler, H., 3076  
 Brester, A., 1767.  
 Breteau, P., 2534  
 Breteau, P., and H. Leroux, 2534, 2757.  
 Breton, 2472  
*Bretonneau*, see *Nodon*  
*Brettes*, see *Martin de Brettes*  
 Bretonniere, L., 227, 3065.  
 Breuer, C., 2878  
 Breuer, E., 2576, 2623, 2645, 2710  
*Breukelen*, see *van Brugkleven*  
 Breunlin, E., 2446  
 Breves, R., 1697  
 Brewer, G., 1207  
*Brewer, J.*, see *C. Vanderkleed.*  
 Brewster, 2913  
 Brewster, A., 2896  
 Brewster, D., 716.  
 Brewster, P., 2881.  
 Brewster, R., 2739  
 Brewster, T., 1329, 1330  
 Breyer, T., 428  
 Brezina, A., 1013  
*Brezina, H.*, see *J. Habermann*  
 Briailles, G. Chandon de, 1290, 1291, 1295, 1303, 1346, 1790, 2005, 2006, 2017, 2401, 2610, 2755, 2893, 3051.  
 Briant, L., and W. Walker, 391.  
*Bridel, M.*, see *E. Bourquelot.*  
*Bridge*, see *Lang, Bridge & Wood.*  
 Bridge, D. & Co., 586  
 Briegleb, F., 1272, 1273.  
 Briegleb, H., 1107, 1119.  
 Briem, H., 2474.  
 Brien, G., 667.  
 Brier, J., 2832, 2834, 2841.  
 Brigalent, G., 2603.  
 Briggs, E., 2601.  
*Briggs, J.*, see *M. B. Alston.*  
*Briggs, J.*, see *C. Cross.*  
 Briggs, J., 35, 127, 148, 198, 200, 221, 294, 305, 348, 349, 377, 380, 385, 1718, 2623, 3021  
 Briggs, J., and R. Balston, 349  
 Briggs, T., 687, 1091, 1273, 1427  
 Briggs, T., and H. Merriam, 1113, 1132, 1191  
*Brigham, C.*, see *H. Haskell.*  
 Brigham, H., 1890  
 Brigham, W., 2755, 2858, 2862.  
 Brighenti, P., 2982  
 Brightman, R., 2394, 2608.  
 Brightmore, 847.  
 Brighman, F., 2866  
 Brillouin, M., 2465  
*Brin, A.*, see *La Brin*  
 Brin, A., 294  
 Brin, A., and L., 294, 1075, 1212.  
 Brindejone, 2786  
 Briner, E., 667, 694, 848, 896.  
 Briner, E. and A. Baerfuss, 694, 848, 897, 1006  
 Briner, E., and N. Boubnoff, 705  
 Briner, E., and E. Durand, 667, 693, 704, 952  
 Briner, E., and E. Fridori, 667, 694, 716  
 Briner, E., and R. Jonas, 1004  
 Briner, E., and A. Kuchne, 1260.  
 Briner, E., and E. Mettler, 667, 897.  
 Briner, E., and P. Naville, 688, 694, 848.  
 Briner, E., and A. Wroczynski, 667.  
*Bringenti, A.*, see *G. Carrara.*  
 Brings, W., 2859, 2862.  
 Brion, 2447  
*Brion, F.*, see *L. Lefevre.*  
 Briou, H. de, 2562, 2574.  
 Brisseau-Mirbel, C., 389  
 Brisset, G., and M. Muguet, 697.  
 Brissonet, J., 2769.  
 Bristol, H., 294  
*Bristol, M.*, see *P. Hervies*  
 British Acetone Plant, 1399.  
 British Aeroplane Varnish Co., and S. Groves, 3048.  
 British Aeroplane Varnish Co., and J. Ward, 1739.  
*British Cellulose and Chemical Manufacturing Co., Ltd.*, see *F. Cumbers.*  
 British Cellulose & Chemical Manufacturing Co., Ltd., 348.  
 British Cellulose Syndicate, Ltd., and V. Mertz, 74, 76, 92, 2654.  
 British Ceroform Co., Ltd., 2596.  
 British Continental Camphor Co., 2505, 2507, 2523, 2524.

- British Cotton & Wool Dyers' Association, Ltd., 3065.  
 British Dyes, Ltd., 1062.  
 British Dyes, Ltd., J. Turner and W. Davidson, 1124, 1203.  
 British Dyes, Ltd., J. Turner, and H. Dean, 1444.  
 British Dyes, Ltd., J. Turner, and J. West, 955.  
 British Emaillite Co., 3048.  
 British Emaillite Co., and J. Goldsmith, 3048.  
 British Glanzstoff Manufacturing Co., Ltd., 92.  
 British Patent Surbrite Co., and E. Meadway, 2593.  
 British Sulphur Co., Ltd., 1025.  
 British Thomson Houston Co., Ltd., 92, 667, 920, 1004, 2492, 2769, 3058.  
 British United Shoe Machinery Co., 2621.  
 British Xylonite Co., see J. Goldsmith.  
 British Xylonite Co., Ltd., see G. Wells.  
 British Xylonite Co., Ltd., 2662, 2682.  
 British Xylonite Co., Ltd., and S. Bain, 2723, 2725.  
 British Xylonite Co., Ltd., and J. Goldsmith, 2765.  
 British Xylonite Co., Ltd., and L. Merriam, 2703, 2707, 2710.  
 Britton, 1638, 2851.  
 Britton, B., see P. Minor.  
 Britton, W., 2853.  
 Brixey, A., 2806.  
 Brixey, W., 2603.  
 Brjuchonenko, 1013.  
 Brjuchonenko, A., 2454, 2458.  
 Broadbeck, C., 2619.  
 Broadbent, A., and R. Woodbridge, 2943, 2956.  
 Broadbent, A., R. Woodbridge, O. Teeple and A. O'Neil, 2966.  
 Broadbent, H., see H. Edinborough.  
 Broadberry, 1031.  
 Broadbridge, W., see H. Picard.  
 Broadhurst, 2765.  
 Broadhurst, H., A. Lanible, S. Peachey, and The United Alkali Co., 2602.  
 Broca, 2786.  
 Brocgy, see L. Le Brocgy.  
 Brochet, A., 2456.  
 Brochet, A., and G. Boiteau, 667, 908, 944, 945.  
 Brochon, L., 1063.  
 Brock, A., 1816, 1887.  
 Brock, A., and C. Brock & Co., "Crystal Palace Fireworks," Ltd., 2952.  
 Brock, C. & Co., "Crystal Palace" Fireworks, Ltd., see A. Brock.  
 Brock, F., see L. Redman.  
 Brock, F., see A. Weith.  
 Brock, J., 1382.  
 Brock, J., and F. Hurter, 1013.  
 Brock, J., and E. Saye, 1273.  
 Brockbank, C., 1107, 1111, 1123, 1414.  
 Brockhaus, 2475.  
 Brockhaus, F., 8710.  
 Brockway, J., 2677, 2706, 2739.  
 Brodbeck, A., 3653.  
 Brodbeck, C., 229, 294.  
 Brodbeck, E., 2623.  
 Brodbek and Esquiron, 2649.  
 Brode, J., 667, 693, 1133, 1134, 1260.  
 Brodhuhn, E., see O. Lummer.  
 Brodhuhn, E., 2494.  
 Brodhurst, B., 2743.  
 Brodie, B., 1013.  
 Brodtkorb, B., 1006.  
 Broelli, G., 2786.  
 Brogden, G., 2847.  
 Broglia, see Bals.  
 Brom, A., see C. Guye.  
 Bromley, C., 898.  
 Bromme, E., and R. Steinau, 802.  
 Broncs, B., 2969.  
 Bronn, I., 618, 2625.  
 Bronn, J., 2757, 2758.  
 Bronnert, E., see M. Fremery.  
 Bronnert, E., see Internationale Celluloseester Gesellschaft.  
 Bronnert, E., 90, 91, 103, 106, 138, 226, 229, 667, 1661, 2317, 2388, 3017, 3018.  
 Bronnert, E., and M. Fremery, 91.  
 Bronnert, E., M. Fremery and J. Urbain, 69, 91.  
 Bronnert, E., and T. Schlumberger, 92, 1697, 2414, 2492, 2576, 2673.  
 Bronzefarbenwerke, 2585.  
 Brook, G., 2843.  
 Brooke, J., 1426.  
 Brooke, N., see Brookes Chemical Co.  
 Brookes, A., 2747, 2909.  
 Brookes, W., 813, 2918.  
 Brookes Chemical Co. and N. Brooke, 751.  
 Brookover, C., 2740.  
 Brooks, B., see H. Essex.  
 Brooks, B., 2488.  
 Brooks, B., and H. Essex, 2486.  
 Brooks, B., D. Smith, and H. Essex, 2469.

- Brooks, C., see L. O'Shea.*  
 Brooks, W., 2818, 2836, 2837, 2843, 2845, 2848, 2850, 2866, 2868.  
 Brooksbank, W., 2742.  
 Broomann, C., 1011.  
 Broomann, R., 2799.  
 •Broome, J., 1218.  
 Broomfield, H., 2728.  
 Brossa, G., *see E. Abderhalden.*  
 Brosse, P., 2646, 2764.  
 Brough, J., 2611.  
 Broughton, C., 2405.  
 Brown, *see Johnson.*  
 Brown, 667, 1071.  
 Brown and Morris, 187.  
 Brown and Tollens, 265.  
 Brown, A., 326, 1043, 1632, 2454, 2658, 2769, 2875.  
 Brown, A. & F. Co., 624.  
 Brown, E., *see F. Abel.*  
 Brown, E., 226, 1606, 1622, 2162, 2660, 2701, 2702, 2712, 2715, 2741.  
 Brown, F., *see A. Brown.*  
 Brown, F., and W. Edwards, 2916.  
 Brown, F., and United Alkali Co., 1370, 1392.  
 Brown, G., 1020, 1037, 1623, 1695, 2797, 2866, 2916, 2920.  
 Brown, H., 2707, 2940, 2942.  
 Brown, H., and T. Glendenning, 400.  
 Brown, H., and J. Heron, 390, 400, 418, 467, 472, 481.  
 Brown, H., and J. Millar, 400.  
 Brown, H., and G. Morris, 400, 401, 406, 472, 476, 481.  
 Brown, H., G. Morris, and J. Millar, 400.  
 •Brown, H., G. Morris, and E. Moritz, 470, 476.  
 Brown, H., and S. Pickering, 400, 401.  
 •Brown, I., 949.  
 Brown, I., and A. Sanborn, 2697.  
 Brown, J., 956, 2462, 2491, 2499, 2506, 2757, 2858, 2888.  
 Brown, J., and Simon-Carves By-Product Oven Co., 1206.  
 Brown, J., and G. Whistler, 2955.  
 Brown, K., *see S. Kendall.*  
 Brown, K., 2769.  
 Brown, L., 1697, 2615, 2666.  
 Brown, M., 2615, 2660.  
 Brown, N., 2916, 2917.  
 Brown, R., 2492, 2844, 2984.  
 Brown, R., and C. Lundholm, 2955.  
 Brown, S., 2700, 2735.  
 Brown, T., 2517, 2892.  
 Brown, W., *see H. Humphrey.*  
 Brown, W., 1674.  
 Brown-Cave, *see Cave-Brown-Cave.*  
 Brown-Sequard, 475.  
 Browne, *see Cave-Browne.*  
 Browne, 2832.  
 Browne, C., and B. Tollens, 238.  
 Browne, J., 2826, 2832.  
 Browne, W., 2712.  
 Browning, G., and C. Boutwood, 2725.  
 Browning, K., *see T. Lotery.*  
 Browning, P., and S. Kuzirian, 2465.  
 Browning, W., and J. Barlow, 429.  
 Browning, W., and J. Barlow, 429.  
 Brownlee, R., 1035.  
 Brownlie, D., 1894.  
 Brownsdon, H., *see T. Bayliss.*  
 Brownsdon, H., *see King's Norton Metal Co.*  
 Brownsdon, H., *see H. Smith.*  
 Brownsdon, H., 793.  
 Broyer, F., and P. Petit, 2414, 2475.  
 Bruce, G., 2519, 2602.  
 Bruce, John W. IX.  
 Bruck, E., 305.  
 Brucker, W., 2497.  
 Bruckner, B., 413.  
 Bruckner, E., *see W. Belt.*  
 Bruckner, W., 92.  
 Bruecke, 391, 398.  
 Bruck Kretschel & Co., 1310.  
 Bruckner, W., 1072, 2581, 2614, 2615, 3057.  
 Bruggemann, H., *see E. Beckmann.*  
 Bruhl, J., 667, 953, 1717, 2383, 2386, 2398, 2404, 2430, 2441, 2442, 2452, 2497, 2501, 2504, 2506, 2507, 2508, 2509, 2520, 2528.  
 Bruhl, J., R. Kobert, and R. Gottlieb, 2513.  
 Bruhl, J., and M. Rudiger, 2513.  
 Bruhl, J., and H. Schroder, 2407, 2462.  
 Bruen, L., 1618, 2981.  
 Bruening, *see Farbwerke Hoechst.*  
 Bruning, *see Farb vorm. Meister Lucius and Bruning.*  
 Bruenler, O., 697, 702, 1006, 1359, 1392.  
 Bruenler, O., and G. Kettler, 693.  
 Bruggisser, M., et Cie., 2643.  
 Brugnatelli, L., 243.  
 Brugnatelli, T., and P. Pellogio, 1013.  
 Bruhat, 2755.  
 Bruhat, J., 2769.  
 Bruhn, G., 1022, 1387.  
 Bruckner, B., 466.  
 Bruley, 1407, 1653, 1724, 1725, 1735, 2072.  
 Brucker, 1212.



- Brumlen, L., 2992.  
 Brun, 2819.  
 Brun, L., 2685, 2715.  
 Brunck, F., 911.  
 Brune, O., 294.  
 Bruneau, 1803, 2974.  
 Brunel, L., see *Jungfleisch*.  
 Brunel, L., 184.  
 Brunel, L., and P. Woog, 945.  
 Brunel, R., see A. Michael.  
 Bruner, J., and C. Klarey, 2908.  
 Bruner, L., 2433.  
 Brunet, H., 446.  
 Brunet, L., 305.  
 Brunhes, J., and J. Dussy, 1014.  
 Bruni, G., and P. Berti, 717, 720.  
 Bruning, A., 1100.  
 Brunkel, L., and P. Woog, 667.  
 Brunler, 690.  
 Brunn, G., see H. Kunisch.  
 Brunner & Co., 1073.  
 Brunner, C., 475, 961.  
 Brunner, J., and C. Klary, 2745, 2747.  
 Bruno, W., 78, 2506, 2645.  
 Brunot, C., 2983.  
 Bruns, J., see W. Ford.  
 Brunschwig, 338.  
 Brunt, see Van Brunt.  
 Brushel, W., and M. Brandegee, 667.  
 Brustier, V., see J. Aloy.  
 Bruun, H., 2560.  
 Bruyere, C., 2416.  
 Bruylants, G., 713.  
 Bruyn, B. de, 2405.  
 Bry, M., 2892.  
 Bryan, H., see R. Davis.  
 Bryant, A., 2718.  
 Bryant, A., and C. Miner, 409.  
 Bryant, J., see W. Hanna.  
 Bryant, O., 305.  
 Bryce, J., see A. Zimmer.  
 Buchanan, J., 727.  
 Buchanan-Taylor, W., see F. Norman.  
 Bucher, 687, 926.  
 Bucher, J., see C. Halton.  
 Bucher, J., 667, 686, 847, 848, 850, 926, 927, 932, 2527, 2552.  
 Bucherer, A., 1380.  
 Bucherer, H., 270, 305.  
 Buchheister, 2578.  
 Buchholz, C., 1013.  
 Buchk, 2988.  
 Buchka, K. von, 2412.  
 Buchner, 1128.  
 Buchner, A., 1340.  
 Buchner, E., 2751.  
 Buchner, E., and J. Meisenheimer, 2445, 2482, 2483.  
 Buchner, E., and R. Rapp, 667.  
 Buchner, E., and W. Weigand, 2523.  
 Buchner, G., 2580, 2658, 2923.  
 Buchner, H., F. Fuchs, and L. Megele, 2435.  
 Buchner, L., see E. Witting.  
 Buchner, L., 2470.  
 Bucholz, E., see F. Holtkamp.  
 Buchstab, B., 1782, 2391, 2581, 2649, 2675.  
 Buck, C., 2965.  
 Buckau, see Chemische Fabrik Buckau.  
 Buckau, E., 2725.  
 Buckle, 927.  
 Buckley, 588.  
 Buckley Brick and Tile Co., see J. M. Gibson.  
 Buckley Brick & Tile Co., 1277.  
 Bucklin, W., 2591.  
 Buckmann, B., 2742.  
 Buckton, G., see A. Hofmann.  
 Bucquet, O., 2558.  
 Buda, v., 1629.  
 Buddaeus, W., 1071, 1075, 1080, 1310.  
 Budde, C., 793.  
 Budde, C., and Hendon Paper Works Company, 564, 568.  
 Buddens, W., 305.  
 Budenberg, see Schaefer & Budenberg.  
 Buch, 847, 891.  
 Buch, J., 927.  
 Buchler, K., 2704.  
 Buchner, E., see L. Wolf.  
 Bueckel, C., see E. Knoevenagel.  
 Buehler, 2801.  
 Buhler, E., 2745, 2857, 2863.  
 Buchler, F., 242, 273, 869, 1307, 2405.  
 Buchl, W., 2964, 2982.  
 Buerger, L., 2411.  
 Buschier, E., see W. Kuwert.  
 Builer, R., see E. Berl.  
 Buetschli, O., 390.  
 Buttner, A., and C. Meyer, 454.  
 Buettner, G., and J. Neumann, 128, 130, 131, 132, 136, 140, 143.  
 Buettner, G., and H. Wislicenus, 44, 57.  
 Buff, H., 667, 1013, 1100, 1124, 1125, 2429.  
 Buff, H., and A. Hofmann, 709, 713, 1057, 1100.  
 Buffalo Foundry and Machine Co., 743, 744, 45, 833.  
 Buffalo Transparent Products Co., 2669.  
 Buffard, C., see P. Girard.

- Buffard, C., 2629  
 Buffaud and Robatel, 227.  
 Buffum, E., 2769.  
 Buford, J., *see* E. Worden.  
 Bugaieff, and A. Wolkoff, 2441.  
 Bugarszky, S., 2501.  
 Buggenhoudt, *see* R. Van Buggen-  
 houdt.  
 Buggenhoudt, R., 611  
 Bugowski, 2472.  
 Bugnet, H., *see* M. Bussy  
 Buignet, H., 1057.  
 Buijs-Ballot, C., 1870, 1817.  
 Buisine, 1024.  
 Buisine, A., *see* E. Du villier  
 Buisine, A., 1013  
 Buisine, A., and P., 2400.  
 Buisine, P., *see* A. Buisine.  
 Buisson, A., 2938.  
 Buisson, J., 305.  
 Bunson, K., 2862.  
 Buisson, R., 2702.  
 Buit, *see* Du Buit.  
 Buit, P. du, 2979.  
 Bull, A., *see* A. Newton.  
 Bull, B., 169, 172.  
 Bullard, C., 294.  
 Bullock, E., and J., 2909  
 Bullock, J., *see* E. Bullock  
 Bullock, J., and C. Mitchell, 2905  
 Bulltel, J., *see* W. Phillips  
 Bum, F., *see* M. Kohn.  
 Bumke, G., *see* R. Wolfenstein.  
 Bumke, G., and R. Wolfenstein,  
 12, 25, 122, 124, 130, 156, 160,  
 524, 1640, 1904.  
 Bume, F., 3042.  
 Bumpus, 2783.  
 Bumpus, H., 2783.  
 Bunel, L., *see* C. Marie.  
 Bunet, P., 847.  
 Bunet, P., and A. Badin, 695, 697.  
 Bunge, N., 2449  
 Bunge, A., 2586.  
 Bunlt, P., 709.  
 Bunn, L., 2706.  
 Bunot, C., 1639.  
 Bunsen, 665, 667, 946, 1086, 1521.  
 Bunsen, R., 1013, 1097.  
 Bunsen, R., and L. Playfair, 667.  
 Bunsen, R., and H. Roscoe, 2487.  
 Bunsen, R., and Schönfeld, 1057,  
 1524  
 Bunte, H., 2494, 2495.  
 Buntrock, 2750.  
 Buntrock, A., *see* O. Witt.  
 Buntrock, A., 2638, 3078.  
 Buntrock, R., and E. Rauber, 114.  
 Buraczewski, J., 2769.  
 Buraczewski, J., and S. Zbijewski,  
 1306  
 Burbury, H., 1086, 1087, 1088, 1093,  
 1233, 1299  
 Burby, J., 294  
 Burcey, C., 2403, 2993  
 Burchardt, T., *see* F. Foerster  
 Burckhardt, *see* F. Wolf-Burckhardt  
 Burdick, C., 1005  
 Bureau d'Organisation Economique,  
 847.  
 Buren, *see* De Buren.  
 Buret, G., 2648.  
 Burette, A., 3064  
 Burford, S., 2462  
 Burgemeister, A., 1209, 1230  
 Burgen, P., *see* G. Morrell.  
 Burger, O., *see* J. Sand.  
 Burgerstem, 389  
 Burgess, *see* Watt  
 Burgess, 2850, 2859, 2860.  
 Burgess, A., and D. Edwards-Ker,  
 667  
 Burgess, J., 2863  
 Burgess, L., *see* M. Barnett.  
 Burgess, M., and R. Wheeler, 667.  
 Burgess, R., and E. Leigh, 2916.  
 Burgess, T., 294  
 Burgess Sulphite Fiber Co., 504  
 Burgevin, H., 927  
 Burgrat, 450  
 Burghoff, J., and J. Wilks, 2717.  
 Burill, P., 2629  
 Burkart, *see* G. Bergrath  
 Burkart, 1623, 2174  
 Burke, A., 2711, 2714, 2715  
 Burke, C., H. Boyd, P. Biddison, and  
 J. Zink, 921  
 Burkhardt, 2986  
 Burkhardt, A., 1222, 1265, 1295.  
 Burkhardt, M., 1577.  
 Burkheiser, K., *see* J. Bredt.  
 Burkheiser, K., 927, 1006, 1030,  
 1031, 1085, 1299.  
 Burn, H., 2890  
 Burnard, C., 1229, 1231.  
 Burnett, 2839.  
 Burnett, H., *see* C. Revis.  
 Burnett, W., 2712  
 Burnham, J. C., 754.  
 Burns, A., 2834.  
 Burns, G., and D. Chandler, 2677.  
 Burns, R., *see* H. Curtis.  
 Burns, W., 1224.  
 Burnside, G., and J. Anderson, 1303.  
 Burow, 2786.  
 Burr, W., 2603  
 Burrell, E., *see* F. Strange  
 Burrell, G., and F. Seibert, 736

- Burridge, J., 2981.  
*Burroughs, C., see J. Hyatt.*  
 Burrows, W., 2604, 2619.  
 Burschell, E., 1030.  
 Burt, A., 2724.  
 Burt, B., 1318.  
*Burt, G., see C. Krieger.*  
 Burt, G., 2723.  
 Burt Co., 2735.  
 Burton, 1785, 2830.  
 Burton and Laurie, 2823.  
 Burton, B., 2955.  
 Burton, W., 273, 294, 447, 2570, 2837, 2909.  
 Busbridge, H., 2862.  
 Buscalioni, L., 389.  
 Busch, A., 2853.  
 Busch, F., 956.  
 Busch, H., 2764.  
 Busch, M., 736, 2316.  
 Busch, M., and G. Blume, 736.  
 Busch, N., and M. Mehrtens, 736.  
 Busch, M., and S. Schneider, 2316.  
 Buschan, P., 2986.  
 Buschan, G., 2454.  
*Buscher, T., see R. Kadish.*  
 Buschow and Beck, 2730.  
 Buser, J., 2769.  
 Bush, E., 2585, 2615, 2898.  
 Bush, H., 1261.  
 Bushridge, F., 204.  
 Busing, W., 2859.  
 Buskvold, 900.  
 Busolt, 1840.  
 Buss, O., 2853.  
 Busse, E., 2747.  
 Busse, W., 2780, 2781, 2782.  
 Bussi, M., 2859.  
 Bussy, A., 1057, 1100.  
 Bussy, L., and P., and H. Philippe, 2612.  
 Bussy, L., H. Philippe, and P. Bussy, 2578.  
 Bussy, M., and H. Buignet, 1330.  
*Bussy, P., see L. Bussy.*  
 Bust, W., 454.  
 Gusvold, N., 667, 701, 869, 933, 1005, 1335.  
 Busz, K., 1013.  
 Butaut, Capt., 2686.  
 Butin, O., 2677, 2704.  
*Butler, W., see A. Bernard.*  
 Butlerow, A., 424, 2438, 2449, 2450, 2505.  
 Butlerow, A., and M. Ossokin, 2429.  
 Butschli, O., 1013.  
 Butt, C., 1006.  
 Buttenshaw, E., 2895.  
 Buttenshaw, W., 447.  
 Butterfield, F., 2920.  
*Butterfield, W., see E. Ou.*  
 Butterfield, W., J. Haldane, and A. Trotter, 2494.  
 Butterworth, 502.  
 Butterworth, H., 226.  
 Butterworth, H. & Sons, 3065.  
 Buttgenbach, H., 1013.  
 Buttin, F., 2574.  
 Butts, H., 2698.  
*Buxton, see Teague.*  
 Buyron, 2837, 2840, 2841.  
 Byers, J., 2618, 2921.  
*Byk, H., see Chem. Werke vorm. Dr. H. Byk.*  
 Byrom, F., 305.  
 Byrom, J., 2703, 2744.  
 Byrom, J., J. Lithgow, and J. Beswick, 3065.  
*Cabe, see J. McCabe.*  
*Cable, D., see S. Mahood.*  
 Cabot, S., 3081.  
 Cadgene, J., 2617.  
 Cadillac Turpentine Co., 2569.  
*Cadoret, see Nash.*  
*Cadoret, see Vogel.*  
 Cadoret, E., 618, 2603, 2612, 2623, 2626, 2642, 2766.  
 Cadoret, E., and A. Jost, 513, 612.  
 Cadoret, F., and E. Degraide, 2669.  
 Cadot, 2900.  
 Cady, P., 2891.  
 Cagniard, C., 2688.  
 Cahen, G., 1739, 2625, 2629.  
 Cahour, 710.  
*Cahours, A., see C. Gerhart.*  
 Cahours, A., 2430, 2448, 2470, 2486.  
 Cahours, A., and E. Demarcay, 2451, 2536.  
 Caille, A., 2876.  
 Cailliet, L., 667, 709, 713, 1057.  
 Cailliet, L., and E. Colardeau, 2496.  
 Cailliet, L., and P. Hautefeuille, 667.  
 Cailliet, L., and E. Mathias, 711, 1057, 1095.  
 Cain, C., 2859, 2860.  
 Cain, T., 2866.  
*Caines, C., see P. Squire.*  
*Cairns, A., see C. Weber.*  
 Cajdt, A., 391.  
 Calberla, 713.  
 Calderwood, W., 1889.  
 Caldwell, 2992, 3061.  
 Caldwell, A., 1591.  
*Caldwell, M., see H. Sherman.*  
 Caldwell, T., and W., and E. Johnstone, 226.

- Caldwell, W.*, see *T. Caldwell*.  
*Caldwell, W.*, 294, 2791, 2894, 2898, 2915.  
*Calico Printers Association*, see *R. Ashton*.  
*Calico Printers Association*, 227.  
*Calico Printers Assoc.*, and *E. Fourniaux*, 2623.  
*Calico Printers Association*, and *W. Warr*, 3065.  
*California Explosive Co.*, 2386, 2032, 2069.  
*California Powder Works*, 2040.  
*Callaghan, W.*, see *W. Parsons*.  
*Callahan, M.*, 2639, 2760.  
*Callan, J.*, see *E. Thomson*.  
*Callan, T.*, 2618.  
*Callenbach, J.*, 2534.  
*Callenberg, E.*, 1784, 1994, 2955.  
*Callenburg, F.*, 2520.  
*Callendar, H.*, 1034.  
*Callender*, see *N. Campbell-Callender*.  
*Callender, L.*, and *E. Griffiths*, 1013.  
*Callender, W.*, 294, 2760.  
*Callens, A.*, 2629.  
*Calliat, E.*, 2637, 2638.  
*Callot*, 398.  
*Callsen, J.*, and *R. Stusser*, 2535.  
*Calm, A.*, 2452.  
*Calmant, F.*, 2416.  
*Calmels, J.*, and *P. Clerc*, 2870.  
*Calmer, J.*, 2600.  
*Calow, T. & Co.*, 391.  
*Calthrop, E.*, 2560.  
*Calvert, 667*, 933.  
*Calvert, F.*, 531, 667.  
*Calvert, G.*, 943, 1006B, 2094.  
*Calvert, H.*, see *J. Cohen*.  
*Calvert, H.*, 2460, 2501.  
*Calvert, J.*, 2649.  
*Calvert, R.*, and *C. Johnson*, 1322.  
*Calvy*, 2786.  
*Camaraque, de la*, see *Compagnie des produits Chimiques*.  
*Cambier*, see *Gethan*.  
*Cambier, R.*, see *A. Trilat*.  
*Cambridge Manufacturing Company*, 2725.  
*Cambron, H.*, 391.  
*Candiani, P.*, 1047.  
*Cameron, P.*, and *J. Breazcale*, 807.  
*Cameron, P.*, and *A. Seidell*, 806.  
*Cameron-Swan, D.*, 2747, 2911.  
*Caminada, P.*, 1874.  
*Caminiti*, 2786.  
*Camitzer, A.*, 2793.  
*Cammitzer, A.*, 2584.  
*Campani*, 195.  
*Campari, G.*, 710.  
*Campbell*, see *Blayr*.  
*Campbell, A.*, 2702, 3058.  
*Campbell, A.*, and *A. Walker*, 788, 796, 813, 986.  
*Campbell, C.*, 2410.  
*Campbell, J.*, 2602, 2604, 2895.  
*Campbell, J.*, and *T. Thomson*, 2749, 2880, 2881.  
*Campbell, W.*, 2742.  
*Campbell-Callender, W.*, 2898.  
*Campedon, G.*, and *L.*, 1056.  
*Campedon, L.*, see *G. Campedon*.  
*Campfre*, see *Societe Anonyme Le Campfre*.  
*Camus & Co.*, see *Pages*.  
*Camuset, E.*, 2803.  
*Camuzet*, 1620.  
*Canada Explosives Co.*, 699, 702, 852, 1003, 1517, 1859.  
*Canadian Consolidated Rubber Co.*, 2602.  
*Canadian Kodak Co., Ltd.*, 2890.  
*Canadian Westinghouse Co., and L. Frederick*, 2778.  
*Canale*, see *F. Santo-Canale*.  
*Canard, F.*, 2610, 2618.  
*Canard, L.*, 2609, 3058.  
*Candiani, E.*, 1222.  
*Candolle*, 389.  
*Canello, J.*, 2594.  
*Canet, G.*, 1624.  
*Canet, M.*, 667.  
*Canfield, W.*, 2781.  
*Cannizzaro, S.*, see *Cloez*.  
*Cannon, C.*, 2742.  
*Cannon, J.*, 2739.  
*Canstén, v.*, 459.  
*Cant, J.*, 1239.  
*Cantagrel*, see *M. Guichard*.  
*Cantilena, P.*, 1129.  
*Cantoni, C.*, 1057.  
*Cantu, F.*, 2613.  
*Cantu, F.*, *G. Miglioretti*, and *G. Maffei*, 2613, 2692.  
*Caoutchouc & Guttapercha Co.*, 2660.  
*Cap and Garot*, 2791.  
*Capelle, E.*, see *H. Osterberger*.  
*Capitain, F.*, and *J. Bernard*, 2686.  
*Capitaine und von Hertling*, 255, 2685, 2747, 2909.  
*Capplemans, J.*, 1301.  
*Capps, F.*, see *T. Macdonald*.  
*Capps, F.*, 2732, 2735.  
*Capps, J.*, see *G. Jones*.  
*Capps, J.*, see *G. Taylor*.  
*Capron, G.*, 231.  
*Capstaff, J.*, 2881.  
*Carara, G.*, and *A. Coppadoro*, 2435.

- Carazzi, 2783.  
*Carbon Hydrate Chemical Co.*, see *K. Wideen*.  
 Carboni, G., 398.  
 Carboneille, H., 2918.  
*Carborundum Co.*, see *F. Tone*.  
 Carborundum Co., 1123, 1363.  
 Carbutt, 1624.  
 Carbutt, J., 2798, 2866, 2888.  
 Carbutt, M., 2834.  
 Carcel, 2494, 2495.  
 Cardani, P., 1013.  
 Cardone, G., 709.  
 Cardozo, D., 1391.  
 Carett, 1623.  
*Carey Lea, M.*, see *Lea, M.*  
 Carey, A., O. Heslop, and The United Alkali Co., 1030, 1114.  
 Carey, E., and F. Hurter, 1087.  
 Carez, A., and Societe Gen. du Maltose, 454.  
 Cari-Mantrand, E., 1011.  
 Cari-Mantrand, M., 2415.  
 Cariola, L., 731.  
 Carius, L., 667, 711, 713, 714, 961, 1057, 2447.  
 Carius, L., and E. Fries, 2447.  
*Carle, J.*, see *E. Strange*.  
 Carles, P., 667.  
 Carless, E., 2600.  
 Carleton, P., 2744.  
 Carlgren, O., and P. Cleve, 1057.  
*Carlinfant, M.*, see *A. Monari*.  
 Carlisle, F., 1088.  
 Carlo, H., 2607.  
 Carls, H., and C. Ebert, 2614.  
 Carls, H., and L. Ebert, 2593.  
 Carlsen, A., 2602.  
 Carlson, F., 667.  
*Carlson, O.*, see *A. Zamore*.  
 Carlson, O., 667, 702, 724, 921, 926, 933, 1870, 2965.  
 Carlson, O., and Aktiebolaget Nitrogenium, 1006B.  
 Carlson, O., and Hartmann & Benker, 1291.  
 Carlson, O., and E. Otterdahl, 2066.  
 Carlson, O., and E. Thall, 1739.  
 Carlson, S., 3018.  
 Carlsons T., 294, 305, 1699, 1717.  
*Carlson, T.*, see *P. Kluson*.  
 Carlyle, R., 2834.  
 Carmichael, A., 1080.  
 Carmichael, A., and H. Montgomery, 1075, 1076.  
*Carmichael, F.*, see *J. Carmichael*.  
*Carmichael, F.*, see *R. Carmichael*.  
 Carmichael, F., and F. Guillaume, 1290.  
*Carmichael, J.*, see *R. Carmichael*.  
 Carmichael, J., and F., 294.  
 Carmichael, J., and F. Guillaume, 1209, 1223, 1291, 1370.  
 Carmichael, R., 1023.  
 Carmichael, R., J. and F., 2681.  
*Carnegie, D.*, see *S. Ruhemann*.  
 Carnegie, D., 2862, 2918.  
 Carneiro, A., 1877, 2339.  
 Carnell, W., 747, 957.  
 Carnelley, T., 731.  
 Carnelley, T., and A. Thomson, 2454.  
 Carnelley, T., and W. Williams, 1013.  
 Carnoy and Lebhan, 2782.  
 Caro, 243, 997, 1293.  
*Caro, N.*, see *A. Frank*.  
 Caro, N., 668, 921, 925, 1006, 1294, 2770.  
 Caro, N., B. Schuck, and R. Jacoby, 926.  
 Carobbi, A., and G. Bellini, 1623.  
 Carodet, E., and E. Delgraid, 1790.  
*Carolles*, see *Blondeau de Carolles*.  
 Caron, 1629, 2810, 2825, 2900.  
 Caron, E., 2302.  
 Caron, H., 668, 964, 2360.  
 Caroselli, A., 2770.  
 Carpenter and Schulze, 274, 305.  
 Carpenter, F., 691, 694, 1027, 1038, 1088, 1092.  
 Carpenter, H., R. Forbes, and S. Linder, 1013.  
 Carpenter, M., 2739.  
 Carpenter, R., 1086.  
 Carpenter, R., and E. Linder, 1252.  
 Carpenter, R., and S. Lindner, 1029.  
 Carpenter, R., and W. Reid, 1007.  
*Carpenter, W.*, see *M. Lefferis*.  
 Carpenter, W., 2578, 2615, 2677, 2687, 2688, 2695, 2705, 2709, 2711, 2720, 2730.  
*Carpioux, E.*, see *A. Gregoire*.  
 Carr, O., 291, 294.  
*Carr, F.*, see *H. Welcome*.  
 Carracido, J., 2482.  
 Carrara, G., 668, 2404, 2405, 2409, 2434.  
 Carrara, G., and A. Bringhenti, 2436.  
 Carrara, G., and A. Coppadoro, 2405, 2443.  
 Carrara, G., and G. Gennari, 2457.  
 Carrara, G., and M. Levi, 2405, 2409.  
*Carrara, G.*, see *R. Nasini*.  
 Carre, L., 2579, 2982.  
 Carrez, E., 2715.  
 Carriere, E., 2786.  
 Carriere, H., 294.  
 Carrick, J., and S. Pattison, 1078.

- Carroll, J., 2415  
 Carroll, W., and J. Seary, 2712.  
 Carsault, 2853.  
*Carson, C., see W. Lang.*  
*Carson, C., see A. Smith.*  
 Carson, C., 1035  
 Carstensen de Segundo, E., 513  
 Cartahu, J., 1600.  
 Carter, F., 2905.  
 Carter, H., 2627, 2649, 2651  
*Carter, J., see New Explosives Co*  
*Carter, J., see T. Walker.*  
 Carter, J., 2976.  
 Carter, P., 807, 1006.  
*Carter, S., see G. Bratig*  
*Carter, T., see W. Gardner*  
 Cartwright, M., 2661  
*Cartwright, T., see W. Earles*  
 Carulla, F., 1013, 1313  
 Carulla, J., 1359  
 Carvalho, D., 2749, 2850, 2860, 2904,  
 2917, 2918  
 Carvalho, J., 1096  
*Carves By-Product Oven Co., see J.*  
*Brown and Simon-Carves By-*  
*Product Oven Co.*  
 Cary, E., 2707  
 Cary-Mantrawl, 1300  
*Casali, A., see G. Stagliarini*  
 Casanova, R., and R. Otto, 1013  
 Casein Co., 428, 2753  
 Casein Company of America, 424  
 Cashellam, 292  
 Caskey, F., 2148  
*Casman, C., see C. Meyer.*  
 Casman, C., 851, 984  
 Casmire, F., 2563  
*Casimir-Stanislas Piastak, see B.*  
*Gaisenband.*  
 Caspari, C., 1591.  
 Caspari, W., 1134.  
 Cassagne, 2900  
 Cassagne, L., 2825  
 Cassan, 1623.  
*Cassella & Co., see L. Vignon*  
 Cassella, L., & Co., 114, 226.  
*Cassels, J., see L. Bracher*  
*Cassier, P., see J. Bourbon.*  
 Casson, T., *see W. Parkin.*  
*Casteau, de see Societe Anonyme de la*  
*Poudrerie de Casteau.*  
 Castell, 3786.  
 Castell, T., 1886.  
*Castella, see F. De Castella.*  
 Castellani, 2809, 2824.  
 Castellanos, P., 1423, 1428.  
 Castelaz, J., and C. Depouilly, 2600.  
 Castle, F., 2758.  
 Castle, P., 2590, 2617, 2754.  
 Castner, H., 944  
*Castor, L., see F. Cossitt*  
*Castoro, N., see E. Schulze*  
 Castoro, N., 237, 412  
 Catala, G., G. Mamsbreeq, and J.  
 De Lannoy, 2553, 2554  
 Catala, V., 3073  
 Cataldi, B., 294  
 Catani, R., 928  
 Cathala, H., 900  
*Cathcart, W., see F. Falding*  
 Cathelmeau, H., and A. Fleury,  
 2754, 2894, 3051  
 Cathelineau, H., and A. Rene, 2770,  
 3043  
 Catherman, O., 2564  
 Catlett, H., 2564  
*Cats, A., see W. Reinders*  
*Cats, A., see W. Reinders*  
 Cattaert, P., 2895  
 Cattaneo, C., 2409  
 Causse, H., 1057  
 Cavalier, J., and E. Prost, 2435.  
 Cavalli, 1766  
 Cavanagh, R., 2725  
 Cavanaugh, L., 2574, 2608, 2615  
 Cavarly, J., 2998  
 Cavazzi, A., 713, 1057  
 Cave-Brown-Cave, H., 2676, 2756.  
 Cavendish, 665  
 Cavendish, H., 679  
 Caventon, 389  
 Cavilli, 1586  
*Caw, W., see G. Henderson*  
 Cawthorn, B., and J. Cornett, 294  
*Caywood, see Williams & Caywood*  
 Cazencuve, P., 709, 1899, 2513, 2520,  
 2623  
 Cazencuve, P., and A. Morel, 2415  
 Cederberg, I., 848, 898, 1006  
 Cederberg, I., H. Backstrum, and  
 C. Kyhlberger, 896, 1006  
 Cederberg, I., and G. Kyneberger,  
 851  
 Ceipeck, N., 1846, 1874, 2967  
 Celis, 2814, 2825  
 Celis, J., 2832  
 Cellarius, A., 1231, 1233.  
 Cellarius, R., 1090, 1092, 1211, 1218,  
 1239, 1266, 1291.  
 Cellon, Ltd., and A. Barr, 3048  
 Cellon, Ltd., and T. Tyrer, 3028  
 Cellon, Ltd., Tyrer & Co., Chambers,  
 and Peasey, 3047, 3048.  
 Cellon, Ltd., T. Tyrer & Co., Ltd.,  
 and T. Tucker, 2394, 2508, 3048.  
 Cellonite Co., 2667.  
*Celluloid Co., see W. Lindsay.*  
*Celluloid Co., see J. Stevens.*

- Celluloid Co., 2047, 2492, 2538, 2580, 2662, 2664, 2665, 2667, 2669, 2672, 2764, 2780, 3048  
 Celluloid Fabrik Kirrmeier, and Scherer, 2674.  
 Celluloid-Fabrik Schreiner & Sievers, 2658, 2683.  
 Celluloid Manufacturing Co., 2662, 2675, 2707, 2716.  
 Cellulose Manufacturing Company, Waldhof, 624.  
*Cellulosepatenter*, see *Akt. Cellulosepatenter*.  
 Cellulosepatenter, A., 270  
 Cenarro, C., 2742, 2743.  
 Centnerszwer, M., see *P. Walden*.  
 Centnerszwer, M., 1057, 2405, 2457, 2498, 2499, 2501, 2513  
 Central Grants Commission of Russia, 2500.  
 Centralstelle f. Wissenschaftlich-Technische Untersuchungen, 900, 904, 946, 2977.  
 Cerf, L., 424.  
 Cerpinwerk, 2511.  
 Ceruti, I., 668, 1038, 1346.  
 Cervenka, E., 3075.  
 Cettolini, S., 2423.  
 Ceviale, 2900.  
*Cew*, see *J. DeCew*  
 Chabanier, H., and E. Ibarra-Loring, 2411.  
 Chabaud-Arnault, 2923.  
 Chabert, 1810.  
 Chaboseau, R., 2912.  
*Chadeloid Chemical Co.*, see *G. McAdam*.  
 Chadeloid Chemical Co., 2563, 2564, 2566, 2567, 2568.  
 Chaffin, 2809, 2811.  
 Challen, J., 2735.  
 Challoner, S., 2403, 2591.  
 Chalmers, H., 2567, 3060.  
*Chalmers Co.*, see *Lamb and the Allis-Chalmers Co.*  
 Chalmot, G., de 158, 171, 238.  
 Chalou, P., 1636.  
 Chamberlin, F., 1930.  
*Chambers and Peasey*, see *Cellon, Ltd.*  
 Chambers, D., and H. Leaver, 2591.  
 Chambers, E., and T. Hammond, 3065  
 Chambers, E., T. Hammond, and G. Jarmain, 2554.  
 Chambrelin, 2786.  
 Chamier, Craig, and Moeller, 668.  
 Chamier and Moeller, 668.  
 Champannois, 458.  
*Champin, H.*, see *H. Diamanti*.  
 Champin, H., 2003.  
 Champion, 2841. 6  
*Champion, H.*, see *H. Diamanti*.  
*Champion, P.*, see *L. Leygue*.  
 Champion, P., 1620, 1844, 1849, 2383, 2450, 2802, 2834.  
 Champion, P., and H. Pellet, 1616, 1620, 1645, 1647, 1796, 2164, 2313, 2487.  
 Champy Freres, 2422.  
*Champy, L.*, see *N. Champy*.  
 Champy, N., and L., 2560.  
 Chamussy, 2860.  
 Chanard, A., 2697, 2754, 2760, 2764, 2765, 2770.  
*Chance*, see *Gridley*.  
 Chance, 1085, 1129.  
 Chance, A., 1013, 1029.  
 Chance Bros., 1360.  
 Chance-Claus, 1025, 1030, 1062.  
 Chance & Hunt, Ltd., 1013, 1390.  
*Chancel, C.*, see *G. Gerhardt*.  
 Chancel, G., 2428, 2471.  
 Chandelon, 2293.  
 Chandelon, T., 1508, 1518, 1677, 1727, 1740, 1753, 2281, 2557, 2629.  
 Chandler, L., 1222, 1299.  
 Chandeysson, U., 2766.  
 Chandler, C., 391, 1278, 2665.  
*Chandler, D.*, see *G. Burns*.  
 Chandler, D., 2715.  
*Chandler, Ltd.*, see *K. Hulett*.  
 Chandoe, J., 2082.  
*Chandon, G. de Brialles*, see *de Brialles*.  
*Channing, J.*, see *F. Falding*.  
 Channing, J., 1075, 1076, 1295.  
 Channing, J., and F. Falding, 1075, 1081.  
 Channon, P., 960.  
*Chanterac, M. de*, see *P. Rousseau*.  
 Chapin, R., 428.  
*Chaplet, A.*, see *W. Main*.  
 Chaplet, A., 537, 611, 2576, 2614, 2642, 2647, 2649, 2760.  
 Chaplin, E., 1300.  
 Chaplin, W., 295.  
 Chapman, 2825.  
 Chapman, A., 3047.  
 Chapman, E., 713, 2450.  
 Chapman, E., and M. Smith, 2438, 2449, 2497.  
 Chapman, E., and W. Thorp, 2449, 2505.  
 Chapman, H., 1785, 2710, 2977.  
 Chapman, H., and W. Stone, 2749.  
*Chapman, J.*, see *Gardner*.  
 Chappell, F., 1232.  
*Chappell, M.*, see *J. Black*.  
 Chappell, M., 2770.  
 Chappero, A., 898.

- Chappuis, J., see P. Hautefeuille.*  
*Chappuis, see N. Eumorfopoulos.*  
 Chappuis, P., 668, 1057, 2680, 2860.  
 Chaptal, L., and J. Gaisset, 295.  
*Chapuis, et Cie, see Desmontis.*  
 Chapus and Andre, 1011.  
 • *Charavet, N., see A. Fargier.*  
 Charbonneaux, E., 2492.  
 Charbonnier, M. and R., 2906  
*Charbonnier, R., see M. Charbonnier.*  
 Chardon, A., 2848.  
 Chardonnet, A., de, 2558.  
 Chardonnet, H. de, 3, 55, 563, 985, 1422, 1440, 1441, 1636, 1725, 1732, 1755, 1758, 1760, 1785, 1890, 1901, 1955, 2022, 2023, 2621, 2626, 2640, 2649.  
 Chardon, 2575, 2825  
 Chardon, A., 1623, 2837, 2840, 2841, 2845, 2846, 2850, 2851, 2906.  
 Chariere, A., 1606, 2324.  
 Charles, A., 1417, 2993.  
 Charles, A., and F. Lancaster, 838.  
 Charles, J., and C. Taylor, 2600.  
 Charlton, J., 1444.  
 Chartler, C., 460.  
*Chartrey, H., see A. Loncle.*  
 Charuel, Y., 3043.  
 Charzal, 1621  
 Chase, H., 2601.  
 Chase, J., 2601.  
 Chase, M., see N. Heinz.  
 Chase, O., 2672, 2677.  
*Chatelier, see Le Chatelier.*  
 Chatfield, R., 986, 1417.  
 Chattaway, D., 2392.  
 • Chattaway, D., and K. Orton, 668.  
*Chattaway, W., see A. Allen.*  
*Chatterjee, N., see R. Dalla.*  
*Chatterji, B., see E. Dutt.*  
 Chaubet, J., 2539, 3051.  
 Chaudet and Delamure-Deboutteville, 195.  
 Chaudet, J., 1011.  
 Chaudhuri, T., 5.  
*Chaudun, see Morel.*  
 Chaumat, A., 74, 2691.  
 Chaume, de H., and G. Pinard-Martineau, 268.  
*Chaumeux, see Perrot de Chaumeux.*  
 Chaumont, M., 2602.  
 Chauvet, H., 2658, 3052.  
 • *Chauviere, L., see Soc. Anon L'Helice Integrale etc.*  
 Chauviere, L., 2584.  
 Chavanne, G., 1846.  
 Chavanne, L., see P. Guye.  
 Chavannes, H. de, see J. Fredureau.  
 Chavassieu, H., 2646, 2649, 3081.  
 Chawner, E., 2826.  
 Chazel, G., 2549, 2906  
 Chazelle, J., 2677, 2710  
 Chazelles, M. de, 2613, 2687, 2700.  
 Chazelles, R. de, 3080.  
 Cheesbrough, F., 295  
 Cheeseman, L., 788.  
 Cheetham, J., 2799, 2909, 2918  
 Cheetham, J., and T. Southworth, 2573, 2601, 2617, 2691.  
 Cheever, J., 2597.  
 Chermal, 2094  
*Chemical and Electrolytic Syndicate, see H. Baynes.*  
 Chemical Construction Co., 1002, 1003.  
 • *Chemical Laboratories, Ltd, see Techno-Chemical Laboratories, Ltd.*  
 Chemische Dunger Fabrik, 1216.  
 Chemische Fabrik A. G., 1306.  
 Chem. Fabrik Aktem Gesellschaft Hamburg, 1308  
*Chem. Fabr. auf Aktien, see A. Loose.*  
 Chemische Fabrik auf Aktien vorm. F. Schering, 99, 1063, 1070, 2432, 2465, 2484, 2524, 2527, 2528, 2529, 2530, 2532, 2752, 2760, 2776, 2855, 2881, 2892, 2918, 3014.  
 Chemische Fabrik auf Aktien, vorm. F. Schering, and A. Loose, 3008  
 Chemische Fabriken, K. Albert and L. Berend, 2767  
 • Chemische Fabrik Bettenhausen, Marquart and Schulz, 74  
 Chemische Fabrik Buckau, 850.  
 Chem. Fabrik, Buckau, Abteilung Dubois & Kaufmann, 2582.  
 Chemische Fabrik Floersheim, 305.  
*Chem. Fabr. Flora A. G., see A. Corti.*  
 Chemische Fabrik Gladbeck Gesellschaft, 848, 850  
 • *Chemische Fabrik Griesheim Elektron, see O. Bather.*  
 Chemische Fabrik Griesheim Elektron, 693, 834, 835, 836, 895, 897, 917, 938, 943, 984, 985, 986, 991, 1005, 1114, 1115, 1219, 1221, 1224, 1260, 1280, 1299, 1311, 1344, 1350, 1392, 2391, 2392, 2420, 2544, 2578, 2582, 2640, 2766, 2770, 2994, 2996, 2998, 3002, 3003, 3023, 3046, 3047.  
 • Chem. Fabrik Grunau, Landshoff & Meyer, 305, 789, 1087, 2998, 3003, 3005.  
 • *Chemische Fabrik Grunau, see I. Lifschutz.*  
 Chem. Fabr. Grunau, Landshoff & Meyer, E. Frank and W. Kirchner, 3003.



- Chem. Fabr. Güstrow, 2559.  
 Chemische Fabrik Heidenau, 2720, 3069, 3080.  
 Chemische Fabrik Helfenberg, 1693.  
 Chemische Fabrik v. Hofmann & Schoetensack, 3001.  
 Chem. Fab. Kalk. Gesellschaft, 1006B.  
 Chemische Fabrik K. Kopper and F. Kammgr, 305.  
 Chem. Fabrik Phoenix, and Rohleder & Co., 1032.  
*Chemische Fabrik Rhenania, see H. Fritzweiler.*  
*Chemische Fabrik Rhenania, see C. Uebel.*  
 Chemische Fabrik Rhenania, 664, 846, 985, 993, 1 71, 1078, 1296, 1367.  
 Chem. Fabrik Rhenania and F. Pro-jahn, 1030.  
 Chem. Fabrik Rhenania, B. Stuer and W. Grob, 2994.  
 Chem. Fabr. Sandoz, 2529, 2530.  
 Chemische Fabrik Uerdingen, Lienau & Co., and W. Naschold, 2518.  
 Chem. Fab. usine Rhone, 3039.  
 Chem. Fabr. von Heyden, 79, 92, 930, 1006B, 1013, 1034, 1036, 1037, 2530, 2532, 2533, 2649, 2660, 2964, 2999, 3007, 3011, 3013, 3018, 3034, 3047, 3049, 3053, 3059, 3060, 3067, 3069, 3074, 3080.  
 Chem. Fabr. vorm. Weiler-Ver-Meer, 2539.  
 Chemische Industrie und Handels-Gesellschaft, 305.  
 Chem. Ind. Aktien Gesellschaft and L. Singer, 1073.  
 Chemische Industrie Aktien Gesell-schaft and F. Wolff, 1031.  
 Chemische Produktenfabrik and G. Schuler, 813.  
 Chem. Werke Fürstenwalde, B. Heck-er and W. Zeidler, 2569.  
 Chemische Werke vorm H. Byk, 814, 985, 2386, 2388, 2392, 2462, 2465, 2509, 2764, 2769, 3005, 3046, 3061.  
 Chenard, E., 2423.  
 Chenel, M., 2318.  
 Cheneveau, C., 2465.  
 Cheney, E. and G. Perry, 2611.  
*Cheney, L., see G. Patterson.*  
 Chenier, A., 2596.  
 Chennévères, de, 2888.  
 Chercheffsky, N., 2496, 2571, 2572.  
*Chernoff, L., see A. Viehoever.*  
 Cherrill, N., 2818, 2820, 2837, 2906.  
*Chertier, G., see P. Nicolardot.*  
 Chesnais, 3071.  
 Chesneau, G., 713.  
 Chevalier, C., and A. Lejeune, 568.  
 Chevandier, 242.  
 Chevolleau, R., 227, 3065.  
 Chevreau, 1635, 2786, 2789.  
 Chevreul, 114, 243, 2797, 2828.  
*Chevreul, M., see A. Morin.*  
*Chevreul, M., see A. Segurier.*  
 Chevreul, M., 392, 1593.  
 Chevrier, 709, 713.  
 Chevrier, M., 2449.  
 Chiaraviglio, D. and O. Corbino, 2255.  
 Chiaraviglio, D., and B. Parodi-Delfi-no, 2955, 2956, 2977.  
*Chicandard, see Seyewetz.*  
 Chicandard, G., 2827.  
*Chick, O., see B. Howard.*  
 Chikachige, M., 714.  
 Child, H., 2682.  
 Childs, E., 2760.  
 Childs, J., 2573.  
 Childs, W., 668.  
 Chilowsky, C., 2697.  
 Chischin, I., 232, 2570, 2613.  
 Chisholm, 2817.  
 Chisholm, C., 2747.  
 Chisholm, W., 2686, 2707.  
 Choate, S. van, 2473.  
 Chodat, R., 401.  
 Chodat and Chuit, 389.  
 Chodnew, 1.  
*Choisy, A., see F. Alary.*  
*Choisy, A., see F. Alary-Ruelle.*  
*Chopin, A., see J. Blondel.*  
 Chorier, L., 3082.  
 Chorley, E., and W. Ramsay, 56, 245.  
*Chorley, J., see E. Baly.*  
 Chorley, J., 2891, 2898, 3075.  
 Choudchak, D., 668.  
 Choukevitch, J., 348.  
 Chrisp, G., 1292.  
 Christen, 2786.  
 Christensen, 2853.  
 Christensen, C., 2880.  
 Christensen, M., 948, 2408, 2492, 2601, 2876, 2881, 2896, 2909.  
*Christiansen, A., see F. Early.*  
*Christiansen, A., see S. Early.*  
 Christiansen, A., 2578.  
 Christie, M., 1299.  
 Christophe, J., 3082.  
 Christopher, J., 668.  
 Chron, 2246.  
 Chryselius, C., 2470.  
 Chrzakzcz, T., 481.  
 Chrzakzcz, T., and S. Pierozek, 481.  
 Chrzaszcz, T., and K. Terlikowski, 481.

- Chudiakow, 197.  
*Chuit, see Choda.*  
 Church, A., 1815.  
 Church, C., 2684, 2687.  
*Churchill, A., see R. Williams.*  
 Churchill, J., 807.  
*Chute, see Gohon.*  
 Chute, H., 2395, 2407, 2412, 2499, 2857.  
 Ciamician, G., 1013.  
 Ciamician, G., and P. Silver, 401, 2459, 2460.  
*Cie etc., see Compagnie etc.*  
 Cieslar, A., 243.  
*Cilliard, see Masselon.*  
 Cines-Seta Artificielle, 3081  
 Cinescelli, 2786.  
*Cioni, G., see N. Tarugi.*  
 Cippolina, L., 227, 3065.  
 Ciselet, E., and C. Dequide, 1031.  
*C. I. Syndicate, see R. Parsons.*  
 Claasz, M., 2778.  
 Claes, P., 305, 668, 789, 817, 1034, 1313, 2413.  
 Claes, P., and Societe Raucq, 2413  
 Claessen, A., 203, 204, 205, 662, 2037, 2549.  
 Claessen, C., 742, 814, 838, 916, 1416, 1789, 1815, 1857, 1858, 1891, 1930, 1991, 2018, 2054, 2068, 2388, 2389, 2537, 2539, 2552, 2642, 2672, 2697, 2753, 2766, 2905, 2945, 2948, 2952, 2953, 2956, 2964, 2966, 2977, 2980, 3010, 3026.  
 Claessen, C., and Badische Aniline Co., 2539.  
 Claffin, A., 305, 440.  
*Claire, see C. Sainte-Claire-Deville.*  
 Claisen, L., 2770.  
 Claisen, L., and O. Manasse, 2520, 2521.  
 Clancy, J., and Nitrogen Corporation, 1006A.  
 Clapp, A., 2493.  
*Clapp, S., see T. Osborne.*  
 Clar, O., and J. Gaier, 1329, 1330.  
 Clarac, J., 1785, 2583.  
*Clark, see Howard.*  
 Clark, 292, 1300, 2853.  
 Clark, A., 295, 2618, 2745, 2834, 2993.  
*Clark, B., see E. Bose.*  
 Clark, C., 269, 1063, 1069.  
 Clark, E., 440, 1308, 2977.  
 Clark, E., and Hart Accumulator Co., 959.  
 Clark, F., 295, 1013.  
*Clark, G., see W. Harkins.*  
 Clark, G., 295, 1618, 1793, 1809, 2066, 2076, 2956, 2977.  
 Clark, G., and R., 2475, 2611  
 Clark, H., 2600  
*Clark, J., see M. Hunter*  
 Clark, J., 1056, 1057, 2749, 2863.  
*Clark, L., see W. Ford*  
*Clark, R., see G. Clark*  
 Clark, T., 1010, 2834  
 Clark, W., 2764, 2799, 2834  
 Clark, W., and G. Rupley, 2494, 2659, 2700  
 Clark, W. A., Explosive Co., 1874  
 Clark-Lyonel, 2750  
 Clarke, 2811.  
 Clarke, and Rare Metals, Ltd., 668.  
 Clarke, E., 2881  
 Clarke, F., 668, 726, 1549  
 Clarke, G., 2254, 2255.  
 Clarke, H., 2536, 2584, 3032.  
 Clarke, H., and Eastman Kodak Co., 2540  
 Clarke, J., 2869, 2881.  
 Clarke, L., 2418, 2445  
 Clarke, L., and R. Shreve, 2462  
*Clarke, P., see S. Peuchen*  
 Clarke, T., 668, 2709, 2834  
 Clarke, T., and E. Smith, 1299  
 Clarke, W., 725  
*Classen, A., see Henning*  
 Classen, A., 137, 281, 305, 421, 657, 752, 896, 898, 936, 1111, 1120, 1122, 2410, 2415, 2649, 2770.  
 Classen, C., 295, 321, 2589  
*Claubry, de G., see Colin.*  
 Claubry, G. de, 450, 2470.  
*Claude, G., see L'Air Liquide.*  
 Claude, G., 668, 687, 851, 898, 946, 1006, 2554.  
 Claude, J., 1073  
 Claudet, 2801, 2822.  
 Claudin, M., 2441.  
 Claudon, E., and E. Morin, 2413, 2454.  
*Claus, see Chance-Claus.*  
 Claus, 1085.  
 Claus, A., 1057, 2449.  
 Claus, A., and E. Trainer, 2454, 2770.  
 Claus, C., 1013.  
 Claus, C., W. Barbnoff, and F. Hildt, 1302.  
 Claus, F., and L. Lewisson, 2500, 2501.  
 Claus, P., 2672  
 Clausius, R., 2487.  
 Clausnitzer, F., 1100  
 Claussen, M., 2735.  
 Clavier, M., 2832.  
 Claviez, E., 664, 2642.  
 Clay, F., 2735.  
 Claypoole, W., 2770  
 Clayton, F., 1070.

- Clayton, H., *see* J. Garner.  
 Clayton, J., *see* S. Courtauld's Ltd.  
 Clayton, J., *see* H. Hutchinson.  
 Clayton, J., *see* H. Tetley.  
 Clayton, J., 2636.  
 Clayton, J., and S. Courtauld, 3072.  
 Clayton, R., *see* Manchester Oxide Co.  
 Clayton, T., 1099.  
 Clayton Aniline Co., *see* W. Bentley.  
 Clayton Aniline Co., *see* S. Dreyfus.  
 Clayton Aniline Co., *see* A. Friedl.  
 Clayton Aniline Co., *see* C. Weizmann.  
 Clayton Aniline Co., 2526.  
 Claziez, 2860.  
 Cleary, J., 2702.  
 Clegg, J., 2698.  
 Cleiren, N., *see* O. Geithmann.  
 Clemendot, L., 2720.  
 Clemencie, J., 709.  
 Clemens, 2815.  
 Clemens, P., *see* H. Hildebrandt.  
 Clement-Botrell, F., 2895.  
 Clement and Desormes, 1008, 1254, 1304.  
 Clement, A., 1211.  
 Clement, E., 1787, 1789, 2675.  
 Clement, H., 2660.  
 Clement, L., *see* P. Nicolardot.  
 Clement, L., *see* C. Riviere.  
 Clement, L., 2571, 3046.  
 Clement, L., and C. Riviere, 1488, 1495, 1498, 1499, 2500, 2541, 2584, 2750, 2895, 2991, 3013, 3032, 3033, 3044, 3046, 3047, 3048, 3049, 3052.  
 Clement, V., 2640.  
 Clementi, A., 411.  
 Clements, G., 2741.  
 Cleminson Electric Lamp Attachment, Ltd., and W. King, 2594, 2691, 2692.  
 Clemm, A., *see* W. Hasenbach.  
 Clemm, A., *see* Verein Chem. Fabriken.  
 Clemm, A., 927, 1003, 1122.  
 Clemm, A., and W. Hasenbach, 1115, 1118.  
 Clemm, A., W. Hasenbach and Verein Chemische Fabr. in Mannheim, 1111, 1120.  
 Clemm, C., 1297.  
 Clemm, C., J. Haas, and W. Lenz, 1811.  
 Clemons, J., 2814.  
 Clennell, J., 668, 736, 738.  
 Clerc, C., 604.  
 Clerc, P., *see* J. Calmets.  
 Clerca, de, V., *see* J. Bourgeois.  
 Clerdent, L., 2600.  
 Clerget, *see* Leguier.  
 Clerget, *see* A. Seguiet.  
 Clerget, A., 459.  
 "Clericus," 2820.  
 Clerk Maxwell, J., *see* J. Maxwell.  
 Clerk, D., 668.  
 Clemendot, L., 2588.  
 Clermont, A., 2452, 2490.  
 Clerville, J. de, 2600.  
 Cleve, P., *see* O. Carlgren.  
 Cliffe, F., *see* W. Craven.  
 Clifford, 2825.  
 Clifford, G., 1276.  
 Clifton, E., 2881.  
 Clifton, E., and A. Wells, 2876.  
 Clifton, W., and B. Oaksford, 2735.  
 Clinchant, G., 2735.  
 Cline, M., and J. Thickens, 295.  
 Clive, J., 2799, 2848, 2866, 2900.  
 Cloez, F., 459.  
 Cloez, S., 1013.  
 Cloez, S., and S. Cannizzaro, 926.  
 Clolus, C., *see* A. Bang.  
 Closmann, E., 2581, 2613, 2707.  
 Cloudman, F., *see* J. Warren.  
 Clouet, J., 2048, 2664, 2719.  
 Clough, W., 1359, 1391.  
 Clouston, R., 2909.  
 Clouzard, 2831, 2834.  
 Clowes, G., 2770.  
 Clyster, F., 30.  
 Coade, M., and E. Werner, 668, 902.  
 Coale, H., 2601.  
 Coanda, J., *see* C. Demetriade.  
 Coates, J., *see* F. Haber.  
 Coates, J., and A. Finney, 668, 694.  
 Coathupe, 1584.  
 Cobb, I., *see* H. Hollings.  
 Cobb, J., 668, 1032.  
 Cobb, P., *see* A. Michael.  
 Cobenzl, 2851.  
 Cobenzl, A., *see* C. Schmitt.  
 Cobenzl, A., 2501, 2593, 2837, 2848, 2853, 2859, 2862.  
 Coblentz, V., 2511.  
 Coblentz, W., 2703.  
 Cobley, T., 295, 1075.  
 Cocco, M., 2814, 2815.  
 Cocholat, *see* P. Prost.  
 Cochenhausen, V., 112.  
 Cochiu, 1902, 2276, 2277, 2281.  
 Cochiu, F., 2629.  
 Cocholat, P., *see* P. Prost.  
 Cochran, J., 572, 662, 1878.  
 Cochrane, A., 2977.  
 Cochrane, F., 226, 3050, 3065.  
 Cochrane, J., 2725.  
 Cocking, A., *see* Kynoch & Company, Ltd.  
 Cocking, A., 837, 1991, 2492.

- Cocking A., and Kynoch & Company, Ltd., 668, 848, 898, 986, 1381, 1703, 1851, 1898, 2156, 2254, 2944, 2945, 2954, 2958, 2978, 2983.
- Cocksedge, A., see W. Firman.
- Cocksedge, H., see F. Freeth.
- Codet, J., 2600.
- Coe, H., 725.
- Coehn, A., and H. Becker, 1111, 1121, 1132, 1302.
- Coen, E., 2572.
- Coetlogon de A., 2688, 2719, 2745.
- Coffeen, J., 1013.
- Coffeti, G., and G. Maderna, 1508.
- Coffignier, C., 2489, 2591, 2770, 3023
- Coggin, D., 2786.
- Coggswell, 622, 624.
- Coglevina, D., 2494.
- Cohen, see J. Basenau.
- Cohen, see Lassar-Cohn.
- Cohen, D., 2681, 2687, 2710
- Cohen, E., see E. Ali-Cohen.
- Cohen, E., 2501.
- Cohen, J., and H. Calvert, 719.
- Cohen, L., see G. Frankforter.
- Cohen, L., 668.
- Cohn, A., 2609, 2619.
- Cohn, B., 2701.
- Cohn, E., 2710, 2711.
- Cohn, E., and L. Arons, 2454.
- Cohn, F., 277.
- Cohn, F., and Kraut, 53.
- Cohn, G., 2770.
- Cohn, H., 2583.
- Cohn, H., and E. Geisenberger, 908.
- Cohn & Wollheim, see E. Fisher.
- Cohnen, B., 226, 3065.
- Cohoe, W., 213, 295, 2770, 3000, 3061, 3082.
- Cohoe, W., E. Fox, and A. Acton, 3082.
- Coffier, C., see S. Barbier.
- Colardeau, E., see L. Cailletet.
- Colas-pillos, P., see A. Pioton.
- Colassi, A., 5, 2022, 2094.
- Colbourn, see Patillo.
- Colbrook, E., see A. Ling.
- Colburn, F., 2696.
- Colburn, F., and J. France, 2745, 2860.
- Colby, E., 2999.
- Colby, E., & Co., 2853, 2855.
- Colby, J., 295.
- Colbyson, H., and A. Dworsky, 2699.
- Coldwell, W., 2841.
- Cole, C., 2603.
- Colefax, A., 1057.
- Coleman, E., see J. Island.
- Coleman, L., 3023.
- Coleman, W., 1252.
- Coles, see Cowper-Coles
- Colett, E., 844.
- Colin, 989.
- Colin, and G. de Claubry, 389.
- Colin, A., 2519, 2652, 3052
- Coln, H., and E. Geisenberger, 851.
- Collan, U., 1057.
- Collard, A., 2554.
- Collard, M., 2826.
- Collardon, L., 78, 104, 504, 2747, 2760, 2764, 2770, 3044, 3081, 3082.
- Collardon, L., and A. Barthel, 2908.
- Collender, see Phelan.
- Collens, A., 2420
- Colleri, H., 2875
- Collet, see Norsk Hydro Elektrisk, etc.
- Collet, D., 992.
- Collet, E., see A. Sachse
- Collet, E., 668, 986, 1005, 1006, 1088.
- Collet, E., and M. Eckardt, 932, 941, 1006, 1072, 1082, 1091.
- Collette, A., and A. Boidin, 2415
- Colley, A., 183.
- Colley, W., 2598.
- Collie, J., 163, 613, 2511.
- Collie, J., H. Patterson, and I. Masson, 688.
- Collin, A., see E. Nolting
- Collin, A., 2627
- Collin, F., see Beucke.
- Collings, 2820.
- Collins, A., 2519.
- Collins, C., 1029.
- Collins, H., 688.
- Collins, H., and N. Tailby, 2698.
- Collins, J., 2413
- Collins, K., 2677, 2692, 2718.
- Collins, S., 736
- Collischenn, F., 3014.
- Collischon, F., F. Ruppert and Verein für Chemische Industrie, 3060.
- Collyer, 292.
- Collyer, W., see L. Bracher.
- Colman, J., 463.
- Colomba, L., 1013
- Colombano, A., 1337.
- Colson, A., 1013, 1036, 2488, 2490.
- Colson, H., 2797.
- Colteloni, 2475.
- Coltzer, A., 2649.
- Columbia Powder Mfg. Co., 2013.
- Colwell, H., and S. Russ, 435.
- Comanari, S., 2902.
- Combe, A., 1785.
- Combe, R., see H. Boston.
- Combes, 1586.
- Combes, A., see C. Friedel.
- Combes, C., 1793, 3023.
- Combes, C., and Fländin, 1572.

- Combes, R., 264.  
 Comes, A., 2595.  
 Comey, A., 1523, 1852.  
 Comité d'initiative Pour la fab. de Produits nitrique, 850.  
 Command-Gesellschaft für den Bau von Feueringsverd, 990.  
 Commati, N., 934.  
 Commercial Products Co., 2593, 2754, 2770, 3080.  
 Commercial Research Corporation, 1854, 2399, 3023.  
 Commissionnaire Prin, 1011.  
 Common, A., 2912.  
 Comoy-Vincent, *see* Soc. Comoy-Vincent.  
 Compagnie pour la Fabrikation des Compteurs et Matériel d'Usines a Gaz, 932, 934, 2561.  
 Compagnie de Floreffe, 1011.  
 Compagnie France-Américaine, 2668.  
 Compagnie Française des Applications de la Cellulose 76, 92, 110, 504, 2629, 2649, 2654, 2660, 3054, 3064.  
 Compagnie Française du Celluloid, 2551, 2590, 2681, 2691, 2692, 2720, 2735, 2754, 3034.  
 Cie, Française de la Galalith, 2760.  
 Compagnie Française de la Soie Parisienne, 74, 106.  
 Compagnie Générale de Chromolithé, 2548, 2578, 2580, 2611.  
 Compagnie Générale D'Electricité, 2770, 3059.  
 Compagnie Générale des Etablissements Pathe Freres, 2917, 3049, 3051.  
 Compagnie Générale de Phonographes de Cinematographs et Appareils de Precision, 2392, 2735, 2736, 2803, 2894, 2898, 2920, 3034, 3059.  
 Compagnie Industrielle des alcools de l'Ardeche, 5, 206, 1086, 1092, 2418.  
 Compagnie Industrielle des Procédés R. Pictet, 1092, 1334.  
 Compagnie Parisienne des couleurs d'aniline, 225, 1075, 1116, 1122, 2546.  
 Compagnie des Produits Chimiques d'Alais et de la Camargue, 2423, 2996, 3001.  
 Compagnie des Produits Chimiques et de la Camargue, 3023.  
 Compagnie des Recipients et Lampes Inexplosibles, 2559, 2560.  
 Compagnie de la Soie de Beaulieu, 1900, 2623, 2629, 2649.  
 Compagnie Urbaine d'Eclairage par le Gaz Acetylene, 2964.  
 Compton, E., 2568.  
 Comstock, D., 2896.  
 Comte, 694, 2837.  
 Condamine, *see* La Condamine.  
 Condelon, *see* Soc. anon. Condelon.  
 Conduche, 2812.  
 Condy, H., 2993.  
 Conc, E., 1051.  
 Conelly, B., 2904.  
 Coninck, *see* Oechsner de Coninck.  
 Coninck, W., de, 96, 142, 477, 3004.  
 Coninck, W., de and A. Raynaud, 95, 1835.  
 Coningham, H., 1318, 1924.  
 Conklin, E., 2688.  
 Conley, A., *see* F. Zimmer.  
 Contant, P., and J. Perrot, 2760.  
 Connell, K., 2770.  
 Conner, C., 2512, 2899.  
 Conner, D., 2611.  
 Connerade, E., 79, 81.  
 Conninck, O., de, *see* de Coninck, W.  
 Continental Royal Phone and Phonogram Co., 2735.  
 Conrad, J., 1076.  
 Conrad, M., and M. Guthzeit, 109.  
 Conrady, E., 2431, 2445, 2454, 2499, 2500, 2501, 2504, 2507, 2508, 2509, 2999.  
 Conrea, C. *see* G. Schilldhaus.  
 Conroy, J., 1132, 1324, 1366.  
 Conroy, M., 2704.  
 Consoli, *see* A. Alonzo-Consoli.  
 Consoli, A., 1033.  
 Consortium f. Elektrochemische Ind., 1025, 1293, 1294, 1302, 1350, 2423, 2501, 2994, 2996, 2998, 3023.  
 Consortium Mulhous pour la fabrication de fils, 89.  
 Constant, 2830, 2831.  
 Constant, A. de, 2826, 2832, 2833, 2834, 2853.  
 Constant-Delessert, de, 2825.  
 Constantin, A., 3061.  
 Contamin, P., 1069, 1087.  
 Contaret, D., 1295.  
 Contencin, J., 2915.  
 Continental Viscose Co., 3070.  
 Converse, G., and J. Bernadou, 2939.  
 Converse, M., 2993.  
 Convert, 2673, 2677.  
 Convert, G., 2660, 2670, 2688, 2715, 2753, 3043.  
 Conybeare, H., 2866, 2891.  
 Cook, F., and C. Stannard, 2715.  
 Cook, H., *see* C. Taylor.  
 Cook, R., 981.  
 Cooke, C., 2735.

- Cooke, S., 713, 1057.  
*Cooke, W., see E. Rennie.*  
 Cookson, N., 1322.  
 Cookson, W., 1010.  
 Cooley, J., 2646.  
*Coolidge, A., see G. Taylor.*  
 Coombs, F., 1063, 1088.  
 • Coombs, J., 2735.  
*Cooper, see Aitken.*  
 Cooper, 668, 1625, 2818, 2823  
 Cooper and Godinus, 2821.  
 Cooper, B., 930, 2876.  
*Cooper, C., see E. Hermite.*  
 Cooper, F., 2860. •  
 Cooper, H., 2832, 2837, 2841, 2843,  
 2847, 2851, 2863, 2902.  
 Cooper, K., 934.  
*Cooper, R., see H. Surface.*  
 Cooper, S., 2618, 2646.  
*Cooper, W., see Wanklyn.*  
 Cooper, W., 2747, 2910.  
 Cooper, W., and W. Nuttall, 2916.  
 Cooper-Key, A., 1924, 2926, 2953.  
 Cooper-Key, R., 2986.  
*Coole, A., see W. Hodgkinson.*  
 Coote, W., 2834.  
 Cope, W., 1920, 2928.  
 Cope, W., and J. Barab, 668, 2316.  
 Cope, W., and G. Taylor, 736, 972.  
 Copelevitz-Josephson, J., 2895.  
 Copland, V., 2695. •  
 Copley, J., 226, 229, 230, 3065.  
 Copley, J., P. Marshall and R. Hea-  
 ton, 226, 3065. •  
*Coppadoro, A., see G. Carrara.*  
 Coppadoro, A., 2500.  
 Coppetti, 2640, 2651.  
 • Corbeels, S., 2662, 2716.  
 Corbet, E., 668, 787, 795.  
 Corbin, 2798, 2885.  
 Corbin, H., 1591.  
 Corbin, P., 2985. •  
*Corbino, O., see D. Chiaraviglio.*  
 Cordner, W., 328, 2660.  
 Cordonnier-Wibaux, A., 2623.  
*Cords, A., see L. Virneisel.*  
 Corenwinder, B., 668.  
 Corey, C., 2826.  
 Cortiss, 2091.  
 Cornalba, G., 2411.  
*Cornec, see M. Guichard.*  
*Cornelson, R., see T. Osborne.*  
 Cornelson, R., 2434. •  
 Cornelson, A., and S. Kostanecki,  
 2770.  
 Cornenberg, 2795.  
*Cornell, J., see B. Cawthorn.*  
 Cornett, J., 295.  
 Cornette, H., and L. Fauchaux, 2420.
- Cornides, L., 2573, 2605, 2649, 2706,  
 2827, 2898, 2910, 2918.  
 Cornillaux, A., 1031.  
 Corn Products Refining Co., 454.  
 Cornu, 2902.  
 Corneillan, Vernede de, 1877, 2652.  
*Corneillan, see also Vernede Corneillan.*  
 Correns, C., 243.  
 Corsini, A., 1013.  
 Cortes, 486.  
 Corti, A., and Fabrique de Produits  
 Chimiques, Flora Societ  Anonyme,  
 2563, 3009.  
 Corvazier, H., 1336, 1500, 1508.  
 Corvol, L., 2688.  
 Corwin, O., 2681.  
 Cory, H., 1247, 1343.  
 Cosio, M. Come de, 2816.  
 Cossa, A., 1013.  
*Cossins, G., see R. Laing.*  
 Cossitt, F., 2898.  
 Cossitt, F., and L. Castor, 2841, 2917.  
 Costa, G., 2454.  
*Costa, T., see R. Nasini.*  
 Coste, 2786.  
 Coste, J., 2570.  
 Coste, J., and L. Nash, 2569, 2572.  
 Cosway, H., and United Alkali Co.,  
 1871.  
 Cotelle, E., 2412.  
 Cotelle, M., 1383.  
 Cotesworth, H., 2837, 2904.  
 Cotte, E., 1803, 1872.  
 Cottereau, E., 1570, 1573.  
 Cottin, J., and J. Four, 504.  
 Cottrell, 1010, 1080, 1302, 1373,  
 1376, 1378, 1393, 1395, 1398.  
 Cottrell, A., 1394.  
 Cottrell, F., 1110, 1111, 1112, 1123,  
 1124, 2718, 2719, 2720.  
 Cottrell, P., 2675.  
 Cottu, H., 2945.  
 Cottu, H., and J. Teyssen, 2967.  
 Couderc, A., 2649.  
 Coudert, F., 2415.  
 Couette, M., 1722.  
 Coughlin, M., 305.  
 Coughlin, M., and C. Sweet, 305.  
 Couher, I., 1313.  
 Couille, P., 2579.  
 Coulier, S., 1033, 1899.  
 Coull, G., 2790.  
 Coulon, M., 277, 295.  
*Coumbray, A., see C. Villedieu.*  
 Counciler, 242.  
 Counciler, C., 179, 236, 238, 2430,  
 2770.  
 Coupe, T., 2561.  
 Couper, P., 295.

- Coupier and Mellier, 292.  
 Coupin, 2627.  
 Coupin, H., 2465.  
*Cour*, see *J. LaCour*.  
*Courbet*, see *E. Rasse-Courbet*.  
 Courmont, C., 1882.  
*Courtaulds, S.*, see *J. Clayton*.  
 Courtaulds, S., & Co., 2629, 2642,  
 2649, 3069, 3072.  
 Courtaulds, S., Ltd., and J. Clayton,  
 2629.  
 Courtaulds, Ltd., and J. Criggal,  
 2629, 3073.  
 Courtaulds, Ltd., and W. Gilles,  
 2614.  
 Courtaulds, Ltd., W. Glover, and  
 L. Wilson, 3067.  
 Courtaulds & Co., and M. Linfoot,  
 2629, 2652.  
 Courtauld & Co., S., and S. Napper,  
 2660.  
 Courtaulds, Ltd., and L. Wilson,  
 3067, 3073, 3076.  
 Courten, L. de, 2832.  
 Courtenay, 101.  
 Courtenay, R., 2813, 2910.  
 Courtenay, W., 101.  
 Courtois-Suffit, 1991, 2968.  
 Courtois-Suffit, and Lafay, 2794.  
 Courturier, F., and L. Meunier, 2436.  
 Courvoisier, 1623, 1887, 2982.  
 Cousins, H., 2735.  
*Cousins, H.*, see *E. Marsh*.  
 Cousins, J., 2575, 2741.  
 Coutagne, 1639.  
 Coutagne, G., 668, 900, 921, 923,  
 1006A.  
 Coutaret, D., 1011.  
 Couverchel, 475.  
 Coux, H. de la, 2627.  
 Covelli, E., 243, 264.  
 Coventry, 2836.  
 Cowan, J., 2834.  
*Cowan*, see *Galloway*.  
*Coward, H.*, see *W. Bone*.  
 Cowie, G., 934.  
 Cowles, H., 981.  
 Cowley and Sullivan, 292.  
 Cowper-Coles, 687, 2081.  
 Cox, A., 2418.  
 Cox, G., 920, 926, 933, 934, 2766.  
 Cox, G., and American Cyanamid  
 Co., 1000A.  
 Cox, H., 2424.  
 Cox, I., 1113, 1124, 1132, 1203.  
 Cox, J., 1247.  
 Coxon, W., 1270, 2997.  
 Coze, E., 2788.  
*Craandijk, M.*, see *N. Gerber*.  
 Crabb, W., 2715.  
 Crabtree, J., 2881.  
 Craddock, T., and J. Thom, 2385.  
*Crafts, J.*, see *C. Friedel*.  
 Crafts, J., 668, 1013, 2431, 2454.  
*Craig*, see *Chamier*.  
 Craig, 2834.  
 Craig, and Spence & Sons, 1031.  
 Craig, B., 725.  
 Craig, J., 1098, 2677, 2735.  
 Craig, R., 1424, 2554.  
 Craig, T., 1042.  
 Craig, W., 2828.  
 Craighill, G., and G. Kerr, 295.  
 Cram, M., 295.  
 Cram, W., 2554.  
 Cramb, 2818.  
 Cramb, J., 2834.  
*Cramer*, see *Lüppo-Cramer*.  
 Cramer, 69, 393.  
 Cramer and Wiesner, 79.  
 Cramer, A., 2725.  
 Cramer, C., 1.  
 Cramer, E., 1639, 1892.  
 Cramp, W., and B. Hoyle, 668,  
 695, 848.  
 Crandon, J., 664.  
*Crane, E.*, see *J. Babcock*.  
 Crane, C., 2549.  
 Crane, F., 1635, 2122, 2386, 2401,  
 2580, 2605, 2722, 2888, 2898.  
 Crane, F., and J. Wellington, 2605,  
 2891.  
 Crane, G., 2916.  
 Crane, H., 2695.  
 Crane, J., 2512.  
 Crane, J., and C. Joyce, 1883, 2511,  
 2515.  
 Crane, L., 2706.  
 Crane Chemical Company, 2492, 2605,  
 2904.  
 Crancy, T., 2426.  
*Craske, W.*, see *H. Saunders*.  
*Crasser*, see *Thomas*.  
 Craven, E., 1311, 1504.  
*Craven, L.*, see *W. Craven*.  
 Craven, W. and L., C. Young,  
 F. and W. Cliffe, 3065.  
 Crawford, 2798, 2834, 2885.  
 Crawford, T., 2725.  
 Crawford, W., 2423.  
 Crease, J., 2596.  
 Creasey, S., 2695.  
 Creighton, 588.  
 Creighton, H., 847, 898, 934, 2513.  
 Creighton, H., and J. Githens, 668,  
 952, 954.  
 Creighton, H., and H. Smith, 954.  
 Crendrioupoulis and Ruffer, 2785.

- Crepelle-Fontaine, 2629.  
 Crepelle-Fontaine, C., 2008, 2415, 2554.  
 Crepy, E., 225.  
 Crepy, R., 2614.  
 Cresap, 668.  
 • Crespin, L., 2623, 2629, 2643  
 Crespon, 2808.  
 Crespon, M., 2843.  
 Crest, C., 2725.  
 Crie, L., 125.  
 Criggal, J., see *Courtaulds, Ltd.*  
 Criggal, J., 2561, 2690, 3073.  
 Crismet, L., 2405, 2416.  
 Cristina, D., 2782, 2783.  
 Crittall and Musgrave, 2979.  
 Crocker, S., 2694, 2695.  
 Crockett, C., 2402.  
 Crockford, C., 1081.  
 Croll, W., 295.  
 • Crombie, W., see *H. Tompkins.*  
 Crombie, W., 2031, 2629, 2649.  
 Crombie, W., and F. Schubert, 2629  
 Crommett, C., 688.  
 • Crompton, see *Winkler.*  
 Crompton, R., 2709.  
 Crompton, R., and B. Jenkinson, 955  
 Crompton, W., and W. Horrocks, 227, 3065.  
 Cronenberg, W., 2853.  
 Cronin, M., 2729.  
 Cronquist, A., 2251.  
 Cronquist, A., and C. Lundholm, 2385.  
 Cronquist, W., 2474.  
 Cronquist, W., and C. Lundholm, 2982.  
 • Crook, J., 2600.  
 Crooker, W., 2618.  
 Crookes, 2815.  
 Crookes, W., see *H. Rayner.*  
 Crookes, W., see *J. Spiller.*  
 Crookes, W., 668, 692, 693, 727, 847, 2621, 2798, 2802, 2815.  
 Crookes, W., and E. Weston, 2594  
 Crosby, A., 945  
 Cros, C., 2870, 2876.  
 Crosfield & Sons, J., and T. Hilditch, 2994, 2995.  
 Cross, C., see *Fine Cotton Spinners' and Dyers' Assoc.*  
 Cross, C., see *A. Luck.*  
 Cross, C., see *R. Mensies.*  
 Cross, C., see *Viscose, Ltd.*  
 Cross, C., see *Weber.*  
 Cross, 3063.  
 Cross, C., 33, 128, 219, 220, 252, 271, 356, 415, 503, 504, 523, 572, 657, 927, 3070, 3071.  
 Cross, C. and E. Bevan, 5, 10, 14, 18, 19, 20, 21, 36, 43, 50, 55, 56, 57, 69, 101, 105, 110, 124, 128, 129, 135, 137, 138, 152, 154, 155, 156, 158, 161, 171, 174, 217, 220, 222, 242, 245, 247, 248, 249, 251, 252, 263, 266, 274, 305, 332, 333, 339, 353, 354, 355, 356, 357, 362, 363, 375, 376, 387, 414, 415, 446, 503, 504, 614, 1718, 1750, 1755, 1807, 1808, 1811, 1844, 1901, 2623, 2652, 2988, 3006, 3016, 3021, 3022, 3056, 3060, 3070.  
 Cross, C., E. Bevan, and Barnes, 245  
 Cross, C., E. Bevan, and C. Beadle, 245, 2024, 3062, 3063, 3069, 3070  
 Cross, C., E. Bevan, and J. Briggs, 250, 263, 343, 349, 371, 414, 524, 1908, 2301, 3013, 3021, 3056, 3082, 3083.  
 Cross, C., E. Bevan, and J. Isaac, 136  
 Cross, C., E. Bevan, and R. Jenks, 415, 1844, 1883, 1907, 2541, 3021.  
 Cross, C., E. Bevan, and C. Smith, 121, 128, 135.  
 Cross, Bevan and Traquair, 414.  
 Cross, C., and C. Dreyfus, 3014.  
 Cross, C., and A. Higgin, 1013, 1036.  
 Cross, C., and Parkes, 612.  
 Cross, C., and J. Remington, 446.  
 Cross, C., and D. Russell, 327.  
 Cross, C., and J. Traquair, 415.  
 Cross, C., and Viscose Development Co., 3076  
 • Cross, D., see *Nobel's Explosives Co.*  
 Cross, D., and D. Peacock, 2545, 2546.  
 Cross, G., see *A. Human.*  
 Cross, W., 295.  
 Cross, W., and B. Tollens, 265.  
 Crossland, P., see *A. Hawley.*  
 Crossley, A., 668, 850, 869, 898  
 Crossman, E., 2953.  
 Croughton, G., 2868.  
 Croullebois, M., 668, 2450.  
 Crow, H., 1518.  
 Crowell, A., 685, 894.  
 Crowell, B., 806.  
 Crowder, W., 1071, 1083, 1246, 1248, 1267.  
 Crowther, D., 226, 3065.  
 Crowther, H., see *E. Rossiter.*  
 Crowther, H., 1345, 2562.  
 Crowther, H., F. Leach, and W. Gidden, 1341.  
 Crozat, L., 2692, 2800, 2904.  
 Crozier, C., 2511.



- Crum, W., 65, 216, 569, 1578, 1585, 1641, 1643, 1647, 1682, 2308, 2906.  
 Crume, G., 2995, 2997.  
 Crumiere, E., 86, 92, 2629, 2643, 2645.  
 Crumiere & Co., E., 2593, 2770.  
*"Crystal Palace" Fireworks, see Brock.*  
*Csiszar, F., see F. Hrdiczku-Csiszar.*  
 Ctibor, C., 2588.  
 Cuau, H., 957.  
 Cuboni, J., 401.  
 Cuevas, E., 726.  
 Cugini, G., 1013.  
 Cuisinier, L., 420, 470.  
 Cullen, J., 1131.  
 Cullen, W., 668, 807, 2324, 2331, 2366.  
*Cullum, H., see H. Peters.*  
 Culmant, E., 2698.  
 Culp, S., 1900, 2640, 2651.  
 Cumbers, F., and The British Cellulose and Chemical Manufacturing Co., Ltd., 3048.  
 Cummer, 754, 773.  
 Cumming, 1003.  
 Cumming, Romanes, and Walker, 802, 1392.  
 Cumming, A., 747.  
 Cummings, J., 2745, 2898.  
 Cummings, U., 1301.  
*Cummings, W., see G. Pelmeur.*  
 Cummins, 583.  
 Cummins, E., 586, 587.  
*Cundall, J., see W. Ramsay.*  
 Cundall, J., 717, 718, 720.  
 Cundill, J., 1633.  
 Cunliffe, W., 2574.  
 Cunningham, E., and F. Thiele, 98.  
*Cunningham, J., see O. Moore.*  
*Cunningham, M., see C. Doree.*  
*Cunningham, M., see Fine Cotton Spinners' and Doublers' Assoc.*  
 Cunningham, M., 211, 212.  
 Cunningham, M., and C. Doree, 151, 157.  
 Cunningham, R., 2592.  
 Cunningham, A., 1011.  
 Cuntz, L., 76, 2554, 3069.  
 Curle, 2339.  
 Curme, G., 2396, 3024.  
 Curphey, W., 1918.  
 Currie, J., 687, 689, 724, 848, 2399.  
*Currie, R., see W. Bancroft.*  
 Currie, W., 2725.  
 Curtis, 668.  
 Curtis and Guyon, 2786.  
*Curtis and Harvey, Ltd., see Hargroaves.*  
*Curtis & Harvey, Ltd., see M. Lloyd.*  
*Curtis & Harvey, Ltd., see A. Percy.*  
 Curtis, A., and A. White, 295.  
 Curtis, C., 747, 1633, 2944.  
 Curtis, C., and G. Andre, 1724, 1785, 1898, 2945, 2948, 2953, 2954, 2956, 2964, 2965, 2968.  
 Curtis, C., and A. Durnford, 1702, 2251, 2956.  
 Curtis, C., D. Metcalf, and A. Percy, 1785, 2980.  
 Curtis, F., 2682.  
 Curtis, H., 2918.  
 Curtis, H., and R. Burns, 2468.  
 Curtis, R., 1134, 1171, 1173.  
 Curtis, W., 295, 2739.  
 Curtius, F., 1203.  
 Curtius, F. & Co., 1080, 1219, 1222, 1223, 1251, 1282, 1291.  
 Cushing, G., 295.  
 Cushman, A., 305, 668.  
*Cushman, O., see M. Randall.*  
*Cusmano, G., see G. Oddo.*  
 Custis, H., 2627.  
*Cutler, A., see W. Force.*  
 Cutler, A., 2586.  
 Cutler, W., 2581.  
 Cutting, J., 1590, 2662, 2694, 2706, 2751, 2798, 2807, 2813, 2827, 2848, 2866, 2885.  
 Cuvillier, L., 2415.  
 Cuyper, E. de., 2480.  
 Cyanid Gesellschaft, 685, 927, 931, 933, 936, 1006A, 2552, 2741, 2956.  
 Cyster, F., 271.  
 Czapek, 242, 243, 261, 262, 265 340.  
 Czernik, G., 668.  
 Czubata, H., 458.  
 Dacommo, G., and V. Meyer, 715.  
*Daeye, M., see A. and H. Knoll.*  
 Daeschner, C., 2481.  
*Dafert, see A. Beutell.*  
 Dafert, 390.  
 Dafert, C., 808.  
*Dafert, F., see U. Kreusler.*  
 Dafert, F., 423, 668, 729.  
 Dafert, F., and R. Miklauz, 668, 934, 943.  
 Dagron, 2914.  
 Daguerre, J., 2797.  
 Daguin, P., 1013.  
*Dahl, see Wulfig, Dahl & Co.*  
 Dahl, C., 295.  
*Dahl, O., see C. Beadle.*  
*Dahl, O., see W. Hancock.*  
 Dahl, O., 696.  
 Dahlgrin, U., 2783.  
*Dassch, A., see W. Davis.*  
 Daisch, A., 477.

- Dais, W.*, see *Harburger Chemische Werke Schon & Co.*  
*Dakin, H.*, 2397.  
*Dale, J.*, see *C. Hudson.*  
*Dale, J.*, see *T. Roberts.*  
*Dale, T.*, see *A. Upward.*  
*Dalen, G.*, 2399.  
*Dalichow, 162.*  
*Dallas, 2900.*  
*D'Almeida, 1630.*  
*Dalton, J.*, 709, 713.  
*Dalton, W.*, 2977.  
*D'Alton-Shee, see Nydon.*  
*Daly, J.*, 2581, 2690, 3056  
*Dam, van, see Van Dam.*  
*Dam, W. van, see P. Thomsen*  
*Damard Lacquer Co., see H. Potter.*  
*Damard Lacquer Co., and H. Potter,*  
 2770.  
*Dambergis, A.*, 2314.  
*Dammann, G.*, see *F. de Mare.*  
*Dambrowski, 2852, 2853.*  
*Damgaard, P.*, 2604, 2621.  
*Damm, F.*, see *P. Benrath.*  
*Damm, F.*, 2677.  
*Dammann, R.*, 3050, 3054.  
*Damond, E.*, see *P. Freundler.*  
*Dana, E.*, 1012.  
*Dana, S.*, 1013.  
*Dangy, L.*, 2681.  
*Daniel, A.*, and *J. Brégeat*, 2558  
*Daniel, H.*, and *H. Romer*, 1072, 1078.  
*Daniel, J.*, and *F. Benoist*, 28, 561  
 592.  
*Daniel, M.*, see *S. Zeisel.*  
*Daniel Process Co.*, 2910.  
*Daniell, J.*, 475.  
*Daniels, W.*, 2749, 2898.  
*Danilevsky, A.*, 2501.  
*Dankwortt, P.*, 2770.  
*Danneel, 668.*  
*Danneel, H.*, and *Elektrizitätswerk*  
*Lonza*, 1006B.  
*Danner, W.*, 2407.  
*Dannhauser, E.*, 2614.  
*Dantony, E.*, see *V. Vermorel.*  
*Dantschakoff, W.*, 2781, 2782, 2783.  
*Danzer, H.*, 2030, 2357, 2393, 2749,  
 2894, 2898, 3007, 3033, 3051.  
*Danziger, J.*, 2459.\*  
*Darabself, D.*, see *F. Warth.*  
*Darapsky, 534, 1617, 1811, 1615,*  
 2986.  
*Darapsky, L.*, 727.  
*Darbishire, F. v.*, and *J. Thorpe,*  
 3002.  
*D'Arcte, F.*, 2511.  
*D'Arcy, R.*, 1100.\*  
*Darier, G.*, see *P. Guye.*  
*Darling, 2302.*  
*Darling, J.*, 813, 927, 1229, 1292,  
 1301.  
*Darling, J.*, and *H. Forrest*, 813, 985.  
*Darlington, F.*, see *R. Macivor*  
*Darmois, E.*, 2519  
*Darnford, A.*, see *C. Curtis.*  
*Darnis, P.*, 1.  
*Darrah, W.*, 2534  
*Darrasse Freres, see Societe Darrasse*  
*Freres.*  
*Darrasse Freres, and L. Dupont,*  
 2511, 2512, 2997  
*Darrin, M.*, see *F. Sperr.*  
*Darrin, M.*, 2306, 2569, 2778.  
*Darrin, M.*, and *Koppers Co.*, 2778.  
*Dartnell, H.*, 729  
*Darvas, A.*, 2977  
*Darwin, G.*, 1635.  
*Dary, G.*, 608  
*Darzens, C.*, 2487.  
*D'Asson, see Baudry, A. deD'Asson.*  
*Dassonville, A.*, 295.  
*Dastre, A.*, 400  
*Dastre, A.*, and *N. Floresco*, 400.  
*Datta, see R. Lal Datta*  
*Datta, R.*, and *N. Chatterjee*, 2985. ✓  
*Datta, R.*, and *J. Sen*, 1294.  
*Daub, C.*, 1203.  
*Daub, C.*, and *J. Deuther*, 1107, 1382.  
*Daub, F.*, 912.  
*Daubeny, C.*, 413.  
*Daubree, A.*, 1013, 1022, 1625.  
*Daucer, J.*, 2914.  
*Dauer, 2830.*  
*Daugnet, E.*, 1301.  
*Daum, F.*, 2592.  
*Dautrebande, L.*, 2418  
*Dautriche, H.*, 2956, 2975, 2980.  
*Davanne, see Barreswil.*  
*Davanne, see Gaillard.*  
*Davanne, 2809, 2818, 2822, 2825,*  
 2826.  
*Davanne, and Jouet*, 2866.  
*Davanne, A.*, 1701, 2802, 2804,  
 2818, 2823, 2827, 2828, 2830,  
 2832, 2835, 2836, 2837, 2841, 2845.  
*Davanne, A.*, and *Barreswil*, 2798.  
*Davanne, A.*, and *P. Gaillard*, 2835.  
*Davanne, A.*, and *T. Sutton*, 2840.  
*Davenport, see W. Read.*  
*Davenport, J.*, 1094, 2002, 2720,  
 2863, 2864.  
*Davenport, W.*, 2862.  
*Davenport Glucose Manufacturing*  
*Company*, 451.  
*Davey, Bickford, Watson & Co.,*  
 2719.  
*Davey, G.*, 2719, 2720.

- Davey, J., 1911.  
*Davey, S., see T. Davey.*  
 Davey, S., 1625, 2048.  
 Davey, T., 1625.  
 Davey, T., and S., 1818.  
*David, see Arnould.*  
*David, see Fortier.*  
 David, 2684, 2747, 2749, 2837, 2843, 2917.  
 David, H., 225, 226.  
*David, J., see H. Tas.*  
 David, J., 662.  
 David, M., 2888.  
 David, W., 2985.  
*David & Co., see C. deGuide.*  
 Davidsen, 1975.  
*Davidson, see British Dyes, Ltd.*  
*Davidson, A., see T. Patterson.*  
 Davidson, C., 1227, 2313.  
 Davidson, E., 1918.  
 Davidson, G., 2826.  
 Davidson, J., and J. Nightingale, 2760.  
 Davidson, R., and United Alkali Co., 1033.  
 Davidson, S., 2770.  
 Davidson, T., 2585.  
*Davidson, P., see J. Remington.*  
*Davidson, W., see British Dyes, Ltd.*  
*Davies, E., see A. Soly.*  
 Davies, 2828.  
 Davies, A., 2881.  
*Davies, E., see W. Harkins.*  
 Davies, E., and H. Goodfellow, 295.  
*Davies, G., see A. Zimmer.*  
 Davies, G., 1011.  
*Davies, H., see W. Bone.*  
*Davies, H., see W. Perkin.*  
*Davies, H., see Richards.*  
 Davies, J., 608, 2604.  
 Davies, M., 1366.  
 Davies, S., 2809.  
 Davies, W., 2619, 2834, 2836, 2841.  
 Davies, W., Co., 3082.  
*Davilla, D., see P. Guye.*  
 Davin, C., and M. Harvey, 2423.  
*Davion, L., see E. Douzal.*  
 D'Avia, 2079.  
*Davis, see Park Davis & Co.*  
 Davis, 1345, 1620, 2831, 2834.  
 Davis & Furber, 621, 622, 624.  
*Davis, A., see D. Bowack.*  
*Davis, A., see G. Davis.*  
 Davis, A., 2482.  
 Davis, A., and G., 1290.  
*Davis, B., see A. Ling.*  
*Davis, C., see J. Morgan.*  
 Davis, C., 2725.  
 Davis, C., and J. Foucar, 1041.  
 Davis, C., and F. Kniffen, 2725, 2726.  
 Davis, D., 2699.  
 Davis, F., 2405.  
 Davis, F., and A. Liebmann, 226.  
*Davis, G., see W. Alcock.*  
*Davis, G., see A. Davis.*  
 Davis, G., 789, 1207, 1209, 1239, 1247, 1252, 1276, 1338, 1349, 1383.  
 Davis, G., and A., 1081, 1211.  
*Davis, H., see T. Richards.*  
*Davis, J., see W. Dreaper.*  
*Davis, J., see G. Taylor.*  
*Davis, J., see J. A. Taylor.*  
 Davis, J., 987.  
 Davis, M., 2677.  
 Davis, R., 898.  
 Davis, R., and H. Bryan, 668, 901, 946, 1006.  
 Davis, R., and L. Olmstead, 898, 1004.  
 Davis, S., 2801, 2806, 2810, 2825.  
 Davis, T., 2828, 2830, 2835, 2837.  
 Davis, W., and A. Dnisch, 475.  
 Davisson, B., 1335, 1336.  
 Davisson, B., and J. Parsons, 972.  
 Davisson, S., 1336.  
 Davoine, H., 328, 1886, 2623.  
 Davy, 389, 1256, 1304.  
 Davy, C., and Schonbein, 713.  
 Davy, H., 668, 709, 945, 1013, 1102, 1254, 2813.  
 Dawant, 2786.  
 Dawbarn, 2741.  
*Dawe, T., see F. Norman.*  
 Dawn, H., 2715.  
*Dawson, see H. Royal-Dawson.*  
 Dawson, 668.  
 Dawson and Hadow, 2801.  
 Dawson, B., 750, 894, 997.  
 Dawson, E., 2770.  
 Dawson, E., and General Electric Co., 2538.  
 Dawson, F., 2826.  
*Dawson, G., see T. Sutton.*  
 Dawson, G., 2801, 2804, 2816, 2825, 2826, 2832, 2836, 2837, 2842, 2843, 2845, 2847, 2864, 2868, 2887, 2902, 2915.  
*Dawson, H., see O. Dawson.*  
 Dawson, H., 668, 807, 1303, 2501.  
 Dawson, O., and H., 2877.  
 Dawson, R., 806.  
 Dawydow, L., 1335.  
 Daxe, M., 2566.  
 Day, A., 2600.  
 Day, A., and R. Sosman, 669.  
*Day, D., see J. Day.*  
*Day, F., see J. Baker.*  
*Day, J., see W. Evans.*

- Day, J., see G. Greenley.*  
*Day, J., and D., 2799.*  
*Day, R., 2698.*  
*Dayan, S., 2742.*  
*Deacon, 1134, 1302, 1338.*  
*Deacon, H., 1011, 1100, 1104, 1113, 1122, 1229, 1289, 1344.*  
*Deacon, H., and F. Hurter, 1301.*  
*Deakin, T., see T. Appleyard.*  
*Dean, 669.*  
*Dean, A., and G. Tower, 274, 364.*  
*Dean, G., 692, 1631, 1853.*  
*Dean, H., see E. Abderhalden.*  
*Dean, H., see British Dyes, Ltd.*  
*Dean, J., J. Knowles, and H. Barker, 225.*  
*Dean, W., and F. Taylor, 547.*  
*Debaugé, see Société Debaugé.*  
*Debaugé & Co., 2395.*  
*Debienne, A., 2513.*  
*DeBlois, L., 753.*  
*Deboucq, L., see A. Michaely.*  
*Debourg, J., 536, 2629, 2649.*  
*Deboutville, see Delamure-Deboutville.*  
*Debray, 710.*  
*Debray, H., 1013.*  
*Debruxelles, H., 2629, 2649, 2930.*  
*Debueh, C., 1075.*  
*Debuisne, A., 2557.*  
*De Buren, C., 2725.*  
*Debus, H., 1013, 1026, 1058.*  
*Debus, H., and N. Socoloff, 1717.*  
*Debusch, C., 1076.*  
*Debushy, E., 3083.*  
*Decagny, 2836.*  
*Decarriere, E., see P. Pascal.*  
*De Castella, F., 1036.*  
*Decastro, J., see T. Mueller.*  
*Decat, G., 2993.*  
*DeCew, J., 34, 230, 295, 305, 504, 664.*  
*Dechange, C., 2786.*  
*Dechant, J., 1058.*  
*Decker, J., 2731.*  
*Decker, J., and W. E. Winkler, P. Friess, and A. Werner, 2731.*  
*Decker, W., see J. Decker.*  
*Decker, W., 295.*  
*Deckert, J., 2603.*  
*Decock, J., 227.*  
*De Coellogon, see de Coellogon.*  
*Deecke, W., 1013.*  
*Deerig, P., 1295.*  
*Defalque, R., 1785.*  
*Defaucamberge, P., 335, 3076, 3081.*  
*Defavrie, A., 2735.*  
*Defays, V., 1133, 2234.*  
*De Forcrand, R., 2454, 2481, 2548.*  
*Defosses, 669.*  
*Defraiteur, 1854.*  
*Defren, G., see G. Rolfe.*  
*Defren, G., 479.*  
*Defresne, T., 416.*  
*Degener, F., see W. Junker.*  
*Degener, P., 1058.*  
*Degens, H., 2896.*  
*Deghué, J., 3062.*  
*Deglatigny, L., see M. Jonas.*  
*Degorce, L., 2577, 2860.*  
*Degraide, E., see F. Cadoret.*  
*DeGramont, A., 1013.*  
*De Gregorio, R., 669, 917.*  
*Degroide, 2606.*  
*Deguide, C., see P. Becquevort.*  
*Deherain, P., 348.*  
*Deherain, P., and L. Maquenne, 398, 669.*  
*Dehn, W., 2992.*  
*Dehos, and Deslandres, 2858.*  
*Deichsel, S., see K. Schaefer.*  
*Deiman, 710.*  
*Deimler, 1276.*  
*Deininger, H., 2413.*  
*Deininger, M., 2475.*  
*Deinse, see L. Van Deinse.*  
*Deiss, A., 5, 272, 344.*  
*Deiss, A., and C. Fournier, 5, 270, 336, 344, 513.*  
*Deiss, E., 2606, 2673, 2687.*  
*Deissler, F., 227.*  
*Deitz, L., 2706.*  
*Deitz, L., and B. Wayne, 1875, 2607.*  
*Deitz, L., B. Wayne, and A. Stone, 2723, 2724.*  
*Dejouge, M., 2479.*  
*Dekhuyzen, M., 32.*  
*Dekker, N., and G. Kingsley, 1025.*  
*Dekoster, M., see J. Pollak.*  
*Delachanal, B., see C. Vincent.*  
*Delacre, M., 2436.*  
*DeLacy, C., 2973.*  
*Delagrangé, E., 2710.*  
*Delahaye, 1590, 2819.*  
*Delahaye, E., 2607, 2609, 2754.*  
*Delahaye, P., 2646, 2647.*  
*Delalande, Z., 2511.*  
*Delamotte, 2801.*  
*Delamotte, P., 2804, 2807.*  
*Delamure-Deboutville, see Chaudel.*  
*De Lannoy, J., see G. Catala.*  
*Delapierre, see E. Froger-Delapierre.*  
*Delarive, A., see de La Rive.*  
*De la Riviere, 2809.*  
*De La Roynq, U., 2658.*  
*Delarue, 2788.*  
*De la Rue, W., 2912.*  
*Delatour, A., see L. Delatour.*

- Delatour, L., and A., 2739.  
 Delaunay, A., 1006.  
 Delbruck, H., 713.  
 Delbrück, K., 2397.  
 Delbrück, M., 461.  
 Deleage, 2826.  
 De Leeuw, 2502.  
*Delepine, M., see M. Berthelot.*  
 Delepine, M., 1324, 1366.  
 Delf, W., 2705.  
 Delffs, W., 392, 2446, 2489.  
*Delfino, see B. Parodi-Delfino.*  
 Delfour, H., 2571.  
*Delgrais, E., see E. Cadoret.*  
 Delhotel, E., 2554.  
*Dellano, see Soc. Dellano.*  
 Delle, L., 2722, 2725.  
*Delmarcel, G., see A. Fischer.*  
*Delnio, see Chiaraviglio.*  
 De Loas, 2657.  
 DeLong, J., 2766.  
 Delory, G., 2715.  
*Deloume, E., see E. Douzal.*  
 Delpech, J., 76, 1785, 1884, 2093,  
     2254, 2553, 2554, 2558, 2584, 2623,  
     2654, 2673, 2704, 2923, 2968, 2969,  
     2977, 2983.  
 Delpech, W., 1931.  
 Delplace, 1365.  
 Delplace, H., and J., 1239, 1243.  
*Delplace, G., see Prentie.*  
 Delplace, G., 1077.  
*Delplace, J., see F. Delplace.*  
 Delplace, R., 704, 1236.  
 Delpuget, R., 1011.  
 Delpy, 1444.  
*Delpy, M., see E. Berl.*  
 Delpy, M., 534, 1975, 1990, 2048,  
     2049, 2675.  
 Delubac, A., 2635.  
 De Luca, S., 17.  
 DeLuca, S., and J. Ubaldini, 1013.  
*Demarcay, E., see A. Cahours.*  
 De Marc, F., 2749.  
 Demel, F., 2588.  
 Dementieff, A., 1033.  
 Demetriade, C., C. Jonescu, and J.  
     Coanda, 2947.  
 Demichel, 2745.  
 Deming, H., 107, 1508, 3016.  
 Demole, 184.  
*Demolon, A., see E. Kayser.*  
 Demolon, A., 1036.  
 De Montgolfier, J., 2514.  
 Demoussy, E., 439, 464.  
 Dempwolf, F., 1082.  
*Demuth, R., see E. Gasagne.*  
 Demuth, R. von, 213, 2421.  
 Demuth, W., 2696.  
 Den, K., 850.  
 Denayrouze, L., 2417, 2595, 2598.  
 Denbeigh, J., 2677.  
*Denbergh, see F. Van Denburgh.*  
 Dencede, A., 2722, 2725.  
 Denegre, C., 2564.  
 Denham, W., and H. Woodhouse,  
     23, 24, 38.  
 Deniges, 964, 1098.  
 Deniges, G., 669, 2408, 2442.  
 Deniges, M., 2435.  
 Denigs, G., 2417.  
 Denington, R., 2423.  
*Denis, H., see O. Dubosc.*  
 Denis, I., 2741.  
*Denis, M., see G. Morane.*  
*Denis, M., see Societe Desmarais.*  
 Denis, M., 2554, 2559, 2623, 2630,  
     2645, 2649, 3073.  
 Denis, M., and S. Barbenet, 2554,  
     2625.  
 Denison, A., and H. Palmer, 290.  
 Denison, J. R., J. Preussner, and  
     J. W. Banks, 3065.  
 Denk, 2751.  
 Denk, A., 2705.  
 Denn, W., 226.  
 Denne, J., 2782.  
 Dennhardt, R., 2409.  
*Dennis, A., see F. Frary.*  
 Dennis, C., and Barret Co., 2778.  
 Dennstedt, M., 2433.  
 Dennstedt, M., and C. Ahrens, 1100.  
 \*Dennstedt, M., and F. Hassler,  
     1042, 1055.  
 Denny, D., 2722.  
*Denny, H., see C. Bailey.*  
 d'Denny, A., 2728.  
 Dent, E., 2677, 2910.  
*Dental Manufacturing Co., see I.  
     Warren.*  
*Deplacé, E., see T. Deplace.*  
 Deplace, T., and E., 1290.  
*De Pont, S., see A. De Pont.*  
 De Pont, A., and S., 2698.  
*Depouilly, C., see J. Casthelaz.*  
*Depouilly, C., see P. Depouilly.*  
 Depouilly, C., and P., 225.  
*Depouilly, P., see C. Depouilly.*  
*Depouilly, P., see C. Garnier.*  
 Depouilly, P., and C., 233, 2649.  
 Depouilly, P., and C., and la Societe  
     C. Garnier and F. Voland, 504.  
 Deputis, 2831.  
*Dequide, C., see E. Cisetel.*  
*Derby, J., see C. Jackson.*  
 Dercum, H., 1303.  
 Dermatoid-Werke, 2669.  
 Dernen, H., 2384.

- Derome, A., 1031.  
 De Ronda Osborn Co., 2505, 2507.  
 De Rossi, G., and A. Sella, 2514  
 De Roth, 2821.  
 Deroy, H., 2554.  
 Derrig, P., 1220, 1232.  
 Deruelle, L., 1271.  
 Dervin, J., 2557, 2623.  
 De Saint Germain, 2743.  
 Desborough, A., 1918, 2968.  
 Desborough, A., J. Reilly, and A. Thaysen, 2397.  
 Desbriere, F., 2735.  
 Desbriere, F., and G. Vescier, 2735.  
 Descamps, L., 1069, 1087.  
 Desch, C., *see* T. Lowry.  
 Deschamp, 2470.  
 Deschamps, 507.  
 Deschiens, M., 3049.  
 Desesquelle, E., 2792.  
 Desesquelle, M., 2791.  
 Desgeorge, R., *see* F. Lebreil.  
 Desgeorge, R., 2760.  
 Desgrez, *see* C. Bomhard.  
 De Sincay, L., 1023.  
 Desire, J., 2749.  
 Deslandres, *see* Dehos.  
 Deslandres, H., 669.  
 Desmarais, L., 2630.  
 Desmarais, L., and G. Morane, 2559.  
 Desmarais, L., G. Morane, and M. Henis, 2623.  
 Desmarais, P., 2423.  
 Desmarest, J., 295.  
 Desmazuères, C., 2512.  
 Desminieres, A., 74.  
 Desmontis, and Chapuis et Cie, 1011.  
 Desmontis, M., *see* M. Jouis.  
 Desmoutis, Lemaire & Co., 1365.  
 Desormes, *see* Clement.  
 Desouches, R., A. Riassé, and A. Düron, 2760.  
 Despaquis, 2574, 2658, 2860, 2864, 2887, 2910, 2920.  
 Despaquis, W. Henley, and D. Spill, 2605.  
 Despeissis, L., 2634.  
 Desprats, 2806, 2808, 2826, 2828, 2829.  
 Despretz, C., 710, 2584.  
 Dessaignes, 1590.  
 Dessaignes, V., 1848, 1863.  
 Dessau, A., *see* M. Dessau.  
 Dessau, M., *see* F. Reddaway.  
 Dessau, M., 2677, 2725, 2729.  
 Dessau, M., and A., 2692, 2698.  
 Destibeaux, J., 2600.  
 Destrem, A., 2434, 2452.  
 Desvaux, *see* Société Neumann, etc.  
 Desvaux, L., 2715, 2760.  
 Desvaux, L., and H. Allaire, 2550, 2675.  
 D. E. Syndicate, Ltd., 1081.  
 Detmer, W., 398, 475.  
 Det Norske Aktieselskab for Elektrokemisk Industrie, *see* M. Sem.  
 Det. Norske Nitrid-Aktieselskab, 1006A, 1006B.  
 Detokief, A., 2627.  
 Detroit White Lead Works, 2566.  
 Detsmya, F., 305.  
 Dettifoss Power Co., Ltd., *see* J. Lidholm.  
 Dettifoss Power Co., and J. Lidholm, 928.  
 Deucker, J., 947.  
 Deussen, E., 2511.  
 Deussen, E., and A. Hahn, 2534.  
 Deutecom, B., 1337.  
 Deuther, J., *see* C. Daub.  
 Deutsch, L., 1349.  
 Deutsch, W., and C. Kanouse, 2687.  
 Deutsche Celluloid Fabrik, *see* R. Müller.  
 Deutsche Celluloid Fabrik, 2024, 2545, 2553, 2896, 3040.  
 Deutsche Celluloid-Kunstdrucker, 2746.  
 Deutsche Gasglühlicht A. G., 663, 844, 1063, 1064, 2608, 2655, 3052, 3061.  
 Deutsche Gold und Silber Scheideanstalt, 2995.  
 Deutsche Gummwaren-Industrie Schlappig & Co., and O. Schlappig, 2709.  
 Deutsche Koloniale Gerb- u. Farbstoff-Ges., 2770.  
 Deutsche Kunsthorn Ges., 2760.  
 Deutsche Kunstlederfab., 2609.  
 Deutsche Oesterreichische Textilose Ges., 2642.  
 Deutsche Petroleum A. G., 2409.  
 Deutsche Pluvium A. G., 2610.  
 Deutsche Raster Ges., 2877.  
 Deutsche Roll Film Fabrik, 2699.  
 Deutsche Saduyn Gesellschaft, 305.  
 Deutsche Sprengstoff A. G., 1636, 2391, 2947, 2950, 2977.  
 Deutsche Steinzeugwaarenfabrik, *see* O. Franz.  
 Deutsche Steinzeugwaarenfabrik, 1275.  
 Deutsche Ton und Steinzeug Akt. Ges., 1124.  
 Deutsche Ton und Steinzeugwerke, *see* G. Plath.  
 Deutsche Ton und Steinzeugwerke, *see*

- A. Pohl.*  
 Deval, 2786.  
 Devarda, 738, 2317.  
*Devaucelle, see L. Petit-Devaucelle.*  
 Devaucelle, L., 912, 931, 1006.  
 Devaucelle, L., and F. Bensa, 927.  
 Devaux, 243.  
*Deventer, see C. Van Deventer.*  
 Deventer, C., van, 413.  
 Devergie, 2786.  
 Devvey, M., 2766.  
 Devilaïne, L., 693.  
 Devilaïne, M., 1292.  
 DeVilbiss Mfg. Co., 2585.  
 Deville, 1189.  
*Deville, see also C. Sainte-Claire-Deville.*  
*Deville, see also H. Sainte-Claire-Deville.*  
 Deville, H., 669, 721, 945, 1058, 1100.  
 Deville, H., and L. Troost, 717, 720, 1312.  
 Deville, H., and F. Wohler, 713.  
 Devimeux, G., 295.  
 Devine, J. P., Co., 2154.  
 Devine, T., 2565.  
 De Vrij, 1648.  
 Dew, J., 3045.  
*Dewar, J., see F. Abel.*  
*Dewar, J., see J. Fleming.*  
*Dewar, J., see G. Liveing.*  
*Dewar, J., see G. Lunge.*  
 Dewar, J., 669, 692, 710, 713, 715, 1014, 1034, 1058.  
 Dewar, J., and J. Fleming, 2404, 2454.  
 Dewar, J., and A. Liebmann, 1122.  
 Dewey, L., and M. Goodloe, 548.  
 Dewolf-Wante, L., 331.  
 Dexter, G., 1033.  
*Dextrin Automat Ges., see H. Wulkan.*  
 Dextrin-Automat Gesellschaft, 476, 664.  
*Dey, B., see B. Sen.*  
 Dey, H., 2699.  
*Dey, M., see P. Ray.*  
*Dey, S., see H. Sen.*  
*Dex, see L. Ménard-Dex.*  
*Dhercourt, see Gillebert.*  
 D'Heureuse, A., 1100.  
 Dhommee, 2657.  
*Dia, G. Heyl, see G. Heyl-Dia.*  
*Diacon, see H. Fonze-Diacon.*  
 Diakonoff, D., 2431.  
 Diamanti, H., 1898, 2003, 2004, 2629.  
 Diamanti, H., and H. Champin, 2630, 2643.  
 Diamanti, H., and C. Lambert, 2554, 2649.  
 Diamanti, H., P. Loisif, and H. Champin, 1899.  
 Diamond, 2813.  
 Diamond, B., 290, 305, 2561.  
 Diamond, W., 1042.  
 Diamond Decorative Leaf Co., 2587.  
 Diamond Paper Mills, 2034.  
*Diamond Slate Fibre Co., see J. McIntosh.*  
 Diamond State Fibre Co., 2779.  
 Diaz-Ossa, B., 727.  
 Dicker, C., 2860, 2881.  
 Dickerson, W., 284, 306, 1087.  
 Dickert, F., 1014, 1022.  
 Dickert, H., 1036.  
 Dickert, M., 3061.  
 Dickinson, M., 2741.  
*Dickinson, W., see Lynxhayr, Ltd.*  
 Dickinson, W., 2643.  
 Dickinson Mfg. Co., 2669.  
 Dickson, J., 2392, 2563, 2566.  
*Dickson, W., see J. Paterson.*  
 Dickson, W., 2595.  
 Dickson, W., and G. Kerr, 2746.  
 Dida, J., 2600.  
 Didier, T., 2675, 2692, 2719.  
 Dieckmann, R., and J. Hagglund, 306.  
 Dieffenbach, O., 669, 898, 945, 985, 991, 1113, 1389.  
 Dieffenbach, O., and W. Moldenhauer, 704, 915, 1004.  
 Dieffenbach, O., and C. Uebel, 916, 985, 991.  
 Dickman, G., 2793.  
 Diels, O., and R. Rhodius, 2462.  
 Dienemann, P., 1006B.  
 Dierichs, E., 2640.  
*Dierichs, & Co., see Bartels, Dierichs & Co.*  
 Dierssen, H., 391, 425.  
 Dieskau, 2891.  
*Diesselhorst, see Thiesen.*  
 Diesser, C., 2594.  
 Diesser, E., 2702, 2770.  
*Diesser, G., see C. Baumann.*  
 Diesser, G., 2646, 2764, 2770, 2895, 3045.  
 Diesser, S., 2646, 2660, 2770.  
 Dieterich, E., 2472, 2793.  
 Dieterle, W., 999.  
 Dieterle, W., and L. Rohrmann, 985.  
 Dietl, G., 2623, 2643.  
 Dietler, F., 3068.  
 Dietrich, E., 2794.  
 Dietrich, G., and O. Seyfert, 225.  
 Dietrich, K., 2592.  
 Dietrich, O., 273.  
*Dietrich, W., see W. VoÛs.*

- Dietz*, see *M. Bodenstein*.  
 Dietz, O., 2651.  
 Dietz, P., and A. Billing, 1099.  
 Dietz, R., 295, 332.  
 Dietzell, B., 459.  
*Dietsenbacher*, see *J. Moutier*.  
 Dietzenbacher, 1014, 1617.  
 Dietzschold, A., 2588.  
 Digby, W., 295.  
 Diggelen, J. v., 2655.  
 Dijken, B. van, 2491, 2504, 2505, 2506, 2508, 2509.  
*Dilette*, see *Herbert-Dilette*.  
*Dilette, G.*, see *L. Schwob*.  
 Dilette, G. and J. Talabot, 1738, 2568.  
*Duligon, E.*, see *De la Gabinere*.  
 Dill, C., 2421.  
 Dime, G., 1785.  
*Dimutrow, P.*, see *Z. Karaoglanow*.  
 Dimmer, 2782.  
 Dimmer, F., 2783.  
 Dinamite Nobel Soc. Anon., 2960.  
 Dinesman, M., 2442, 2440.  
 Dinger, F., 2630, 3068.  
 Dinin, A., 2755.  
 Dinslage, E., 669, 809, 934.  
*Dior*, see *Soc. Dior Fils*.  
 Dior, R., 2770.  
 Diroy, L., 1303.  
 Dirks, B., 1350.  
 Disderi, 2789, 2801.\*  
 Disderi, A., 2886.  
 Diss, A., 2678.  
 Disser, G., 2764. °  
 Distaso, A., 348.  
 Distler, C., E. Blecher, and C. Lopez, 1871.  
 • Dittmar, C., 1816, 2023.  
 Dittmar, R., 3079.  
 Ditte, A., 669, 1096, 1100, 2440.  
 Dittenhoefer, M., 958.  
 Dittler & Co., 1060, 1099. °  
 Dittman, C., 2957.\*  
 Dittmar, 669, 1314.  
 Dittmar, C., 1618, 1619, 1818, 1849, 1880, 2256.  
 Dittmar, H., 2578, 2614, 2683, 2692, 3059.  
 Dittmar, W., 1312, 2500.  
 Dittmar, W., and C. Fawsitt, 2407.  
 Dittmar, R., 2707.  
 Dittrich, M., 1055.  
 Dittrich, M., and C. Hassel, 1294.  
*Düs, H.*, see *V. Hobling*.  
 Ditz, H., 125, 128, 139, 155, 179, 180.  
 Ditz, H., and F. Kanhauser, 932, 933, 1119, 1359.  
*Disler, G.*, see *P. Follet*.  
*Düslar, G.*, see *T. Stephan*.  
 Ditzler, G., 88, 2630, 2655.  
 Ditzler, G., and T. Stephan, 2630.  
 Divers, E., 17, 669, 713, 715, 716, 717, 721, 1014, 1100, 1259, 1261, 1604, 1670, 1702.  
 Divers, E., and T. Haga, 713, 1058.  
 Divers, E., and M. Ogawa, 1058.  
 Divers, E., and T. Schmidzu, 717, 1014, 1058.  
*Dixon, B.*, see *J. Remington*.  
 Dixon, C., 1810.  
*Dixon, F.*, see *A. Hawley*\*.  
 Dixon, H., 1058, 2749, 2799, 2827, 2828, 2837, 2839, 2842.  
 Dixon, H., and J. Peterkin, 713, 715, 716, 1304.  
 Dixon, J., 2673, 2677.  
*Dixon, W.*, see *Bayer & Co*.  
 Dixon, W., 1617.  
 Djakonoff, D., 2452.  
 Djeinim, 1517.  
 Djeinim, A., 2985.  
 Djewnheim, A., 2992.  
*Dmochowski, R.*, see *B. Tollens*.  
 Dmochowski, R., and B. Tollens, 378.  
 Dobbelsstein, O., 669, 848.  
 Dobbie, J., 2427.  
 Dobbie, J., and J. Fox, 1037.  
 Dobbins, L., 1098, 2440.  
 Dobbins, L., 2660, 2738.  
 Dobbs, C., and R. Pitman, 2977.  
 Dobert, H., 2595.  
 Dobler, E., 2712.  
 Dobler, F., 2760.  
 Dobler Bros., 2668.  
 Dobrin, C., 457.  
 Dobriner, P., 2770.  
 Dobriner, P., and W. Schrantz, 1329.  
 Dobroslavine, A., 417, 474.  
 Dobrosserdow, L., 2490.  
 Dobson, C., 2405.  
 Dobson, F., 269, 611, 612.  
 Doby, C., 2422.  
 Dochain, F., 1076.  
 Dockree, R., 2692, 2894, 2904, 2908.  
 Dodd, R., and H. Humphries, 2551, 2720, 2766.  
 Dodel, A., 389.  
*Dodge, C.*, see *E. Knoedler*. °  
 Dodge, C., 538.  
 Dodge, F., 981.  
 • Dodge, N., 2600.  
 Dodge, O., 2893, 2910.  
 Dodgson, J., 669.  
 Dodsworth, W., 2095.  
 Doeberer, J., 475, 713, 1102, 1104, 2470.  
 Doeltz, F., and G. Graumann, 1080.  
*Doeppling, O.*, see *J. Schlossberger*.



- Doepping, O., 243, 326, 1058, 2511.  
 Dörfler, M., 2484.  
*Doerflinger, L., see P. Magnier*  
 Doerflinger, W., 2402, 2484, 3048  
 Doering, W., 2957.  
 Does, P., 2853.  
*Doescher, H., see J. Houben.*  
 Döyke, C., 849.  
 Dogilbert, F., 2877.  
 Dogny, H., and V. Henri, 3081.  
 Dohan, J., 295.  
 Dohet, E., 1073, 1078.  
 Dohne and Engelhardt, 2789  
 Dohrn, M. de, 2786.  
 Dohrt, W., 3052, 3059.  
 Dolch, M., 934.  
 Dolder, J., 226, 227, 236, 3065.  
 Dolezalek, F., 2489.  
 Dolgolenko, W., 2445.  
 Doller, F., 2611.  
*Dollfus, see Lepetit.*  
 Dollfus, F., 2993.  
 Dollfus, F., and F. Scheurer, 426.  
 Dollfus, Miege & Co., 225.  
 Dolliak, 1804, 1872.  
*Domcke, E., see H. Baker.*  
*Domcke, E., see E. Tiede.*  
 Domergue, 1014.  
 Domergue, A., 1033.  
 Domergue, M., 1035.  
 Domke, 1530.  
 Domke, J., and W. Bein, 1316.  
*Domonte, see F. Flores-Domonte.*  
 Domonte and Menard, 1588, 2802  
 Domonte, F., and Menard, 1584.  
 Doms, J., 2604.  
 Domptet, F., 2688.  
 Don, T., and A. Wright, 2654.  
 Don, T., and R. Wright, 2649.  
 Donagan, E., and R., 2711.  
*Donagan, R., see E. Donagan.*  
*Donald, see B. MacDonald.*  
 Donald, J., 2924.  
 Donald, J., and J. Macaulay, 2043,  
 2045.  
*Donald, W., see R. Main.*  
 Donald, W., 702.  
 Donald, W., and J. Mitchell, 2707.  
*Donaldson, R., see L. Fredman.*  
 Donard, E., and H. Labbe, 934,  
 2550.  
 Donard, L., 2554.  
 Donath, E., 480, 898, 944, 945, 1058.  
 Donath, E., and A. Indra, 925, 942,  
 944, 945.  
 Donath, E., and J. Mayrhofer, 1014.  
 Donath, J., 710.  
 Doninelli, J., 3065.  
*Donington, G., see T. Lowry.*  
 Donisthorpe, E., 2881, 2894.  
 Donk, A., 1382.  
*Donk, M., see F. Veitch.*  
 Donkin, W., 669.  
 Donnachie, D., 702, 837.  
*Donnan, F., see C. Baly.*  
*Donnan, F., see E. Baly.*  
 Donnan, F., and J. Thomas, 79.  
 Donnan, G., 726.  
*Donnersmarck, see G. Von Henckel-*  
*Donnersmarck*  
 Donnersmarck, 3056.  
 Donnersmarck, G., 3073.  
*Donnersmarck-Beutel, A., von, see*  
*H. von Donnersmarck-Beutel.*  
 Donnersmarck-Beutel, H., von, and  
 A., 295.  
 Donnersmarck'sche Kunsteiden und  
 Acetatwerke, 87, 88, 2653.  
*Donnithorne, T., see J. Liardet.*  
 Donny, 2823.  
 Dony-Henault, O., 92, 2623.  
*Doornkaat-Xoolman, C. den, see Arn-*  
*stadter, etc.*  
 Dore, F., 2868.  
 Dore, W., 258, 664.  
*Doree, C., see M. Cunningham.*  
 Doree, C., 153, 157.  
 Doree, C., and M. Cunningham,  
 253, 295.  
 Doremus, C., 2534.  
*Dorenfeldt, L., see V. Drewsen.*  
 Dorenfeldt, L., 290, 306.  
*\*Dorian, see A. Keller-Dorian.*  
 Doring, 2786.  
 D'Orlowski, J., 391.  
 Dorn, E., 710, 1058.  
 Dörner, B., 295.  
 Dornig, J., 2415.  
 Doroszewsky, 669, 2422, 2437, 2465.  
 Doroszewsky, A., and S. Dwor-  
 zaniec, 2407.  
 Doroszewsky, A., and E. Polianski,  
 2407, 2437.  
 Doroszewsky, A., and A. Rakowsky,  
 477, 1835, 1836, 2418.  
 Doroszewsky, A., A. Rakowsky, and  
 A. Bardt, 477, 1836.  
 Doroszewsky, A., and M. Rosh-  
 destvensky, 2407, 2437.  
*Dorp, W. van, see W. Van Dorp.*  
 Dorz, H., and H. Seyfert, 2592.  
 Dorsett, D., 2678.  
*Dori, R., see E. Worden.*  
 Dosne, P., 225.  
 Doss, B., 1043.  
 Dosselman, G., 2581.  
 Dosselman, G., and P. Neymann,  
 2565, 2566.

- Dotterer, T., 1291, 1308.  
Doubleday, J., 2423.  
Doucet, A., see *O. Laquis*.  
Dougall, J., 1619.  
Douglass, O., see *C. Thorpe*.  
Douge, J., 1732, 2554, 2623.  
Doughty, see *Bayard*.  
Doughty, see *Livingston*.  
Doughty, C., 295.  
Doughty, H., 2407.  
Doughty, T., 2904.  
Douglas, 1396, 1482.  
Douglas, A., see *A. J. J. Douglais*.  
Douglas, C., 225, 226.  
Douglas-Fraser, 740, 785.  
Douque, A., 2613, 3057.  
Dowlen, J., see *Duchemin*.  
Doutrelepont, and Schreiber, 1851, 1850.  
Doutrelepont, A., 1856, 2385.  
Douzal, E., L. Davieon, and E. Deleu-  
me, 2588.  
Douzal, J., 982.  
Dover, H., 2669, 2677, 2683, 2685,  
2688, 2698, 2700, 2722, 2725  
Dover, H., and P. Phipps, 2698.  
Dovey, E., 2515.  
Doynen, L., 721.  
Dow, C., 1900.  
Dow, D., and J. Telfer, 948.  
Dow, H., 1006, 2434.  
Dow, L., see *A. Johnston*.  
Dowell, C., see *P. Menaul*.  
Dowler, H., see *J. Hurst*.  
Downing, G., 2735.  
Downington, W. M. F. Co., 2088, 2112,  
2113.  
Downs, C., and R. Bellwood, 2554.  
Dowzard, E., 1335, 2516.  
Dox, A., and G. Roark, 437, 445.  
Drabble, E., 573.  
Drabble, E., and M. Nierenstein,  
243.  
Draffin, J., 2826.  
Dragendorff, 242.  
Dragendorff, H., 392.  
Dragoumis, E., 2735.  
Drake, P., 2718.  
Drakeley, T., 1030, 1043.  
Draper, 2824, 2829.  
Draper, H., 689, 2822.  
Draptier, J. P., Dubois, and Spiriteine,  
Ltd., 3061.  
Drawe, R., 694, 701, 715, 1005.  
Dreaper, W., 25, 66, 88, 102, 295,  
928, 2627, 2630, 2638, 2642, 2649,  
2651, 3052, 3062.  
Dreaper, W., and J. Davis, 2651, 3052.  
Dreaper, W., and H. Tompkins, 102.  
Dreaper, W., and A. Wilson, 62, 63,  
2651.  
Drehbel, 1007.  
Drechsel, E., 713, 1014, 1100  
Dreger, W., 1422, 2068, 2336.  
Drehschmidt, H., see *V. Hottenroth*.  
Drehschmidt, H., 2494, 2596.  
Drena, 2657.  
Dresel, 290.  
Dressbach, P., 454.  
Dressel, C., 2745.  
Drew, E., 2601.  
Drewnen, V., 273, 279, 282, 289,  
306, 329, 504, 1086, 3080.  
Drewnen, V., and L. Dorenfeldt, 282.  
Drexler, O., 2702.  
Dreyer, F., 2405.  
Dreyfus, 2454, 2786.  
Dreyfus, C., see *C. Cross*.  
Dreyfus, C., 826, 986, 2579, 2980,  
3010, 3033, 3048, 3080.  
Dreyfus, C., and A. Green, 2907.  
Dreyfus, H., 37, 2392, 2410, 2423,  
2538, 2543, 2608, 2990, 2995, 2996,  
3000, 3001, 3008, 3012, 3013, 3014,  
3020, 3023, 3026, 3028, 3030, 3039,  
3040, 3041, 3043, 3045, 3047, 3048,  
3051, 3060, 3061.  
Dreyfus, H., and L. Schneeberger,  
3053.  
Dreyfus, I., 346.  
Dreyfus, J., 326.  
Dreyfus, L., 2761.  
Dreyfus, S., 752, 825, 1357.  
Dreyfus, S., and Clayton Aniline Co.,  
1355, 1389.  
Dreyfus, W., see *A. Hilger*.  
Dreymann, C., 1308.  
Drieu, J., and A. Legeay, 2000.  
Dring, J., 2098.  
Drinker, P., see *E. Worden*.  
Drinker, P., 901.  
Drinkwater, 1047.  
Drinkwater, J., 2577, 2617.  
Drinkwater, T., 1337.  
Drinkwater, W., 2866.  
Drion, C., see *A. Loir*.  
Drion, C., 717, 1058.  
Drittler, F., 445.  
Dritz, F., 2882.  
«Drivremfabriken "Dana," 2602.  
Droegg, G., 2511.  
D'Rohan, W., 430.  
Droitcour, M., 2910.  
Dromain, N., 2417.  
Droogenbosch, see *Soc. Anom. de  
Produits Chimiques de Droogen-  
bosch*.  
Drepiowski, T., 2895.

- Drossbach, G., & Co., 78, 2506.  
 Droste, A., 79, 2649.  
 Drouet, 2790.  
 Drouet, A., 2786, 2788.  
*Drouguine, G., see P. Guye*  
 Droulers, L., R. Geuge, and V. Ragon, 2415.  
 Drown, T., 1014, 1056.  
 Drucker, K., 1058, 2459.  
 Drucker, K., and R. Kassel, 2465, 2998, 2999.  
 Drucker, M., 391.  
 Drude, P., 2386, 2404, 2434, 2442, 2457, 2490, 2497, 2499, 2501, 2504, 2505, 2506, 2507, 2509.  
*Drugman, J., see W. Ramsay.*  
 Drugmann, J., and W. Ramsay, 669, 1014.  
*Drum, G., see R. Smith.*  
*Drum, G., see J. Skitt.*  
 Drumm, C., 452.  
*Drumm, J., see H. Ryan.*  
 Drumm & Co., 452.  
*Drummond, A., see R. Robertson.*  
 Drummond, D., 2834.  
 Drummond, L., 1631, 2692, 2695, 2720.  
 Drummond, M., 2727.  
 Dubbs, J., 1023.  
 Dubell, 2576.  
 Dubief, A., 458.  
 Dubiel, J., 446.  
 Dubieusart, F., 729, 1032, 1099.  
*Dubois, see Chem. Fabrik. Buckau.*  
 Dubois, A., 2638.  
 Dubois, C., 1031, 1033.  
 Dubois, D., 2554.  
 Dubois, E., 2898.  
*Dubois, G., see A. Sebillot.*  
 Dubois, G., and A. de Baudry d'Asson, 2635.  
*Dubois, P., see J. Drapier.*  
*Dubosc, A., see E. Hermite.*  
 Dubosc, A., 106, 234, 2423, 2505, 2506, 2519, 2757, 2770, 2992, 3004, 3019.  
 Dubosc, A., and O. Picquet, 2518, 2519.  
 Dubosc, A., F. Zimmer, and P. Lee-mans, 3041.  
*Dubosc, L., see M. Jouas.*  
 Dubosc, O., 2519, 2529.  
 Dubosc, O., A. Luttringer and H. Denis, 3002, 3004.  
*Duboscq, see Robiquet.*  
*Duboscq, J., see E. Robiquet.*  
 Dubost, 2820, 2831.  
 Dubot, E., 2630, 2710.  
*Dubourg, E., see H. Gayon.*  
*Dubourg, E., see U. Gayon.*  
 Dubovitz, H., 2759.  
*Dubreuil, see J. Jouveau-Dubreuil.*  
 Dubrot, F., 295.  
 Dubrunfaut, 392, 669.  
 Dubuc, 725.  
 Du Buit, C., 2174.  
*Duc, A., le, see A. Le Duc.*  
*Ducancel, P., see H. Gouthiere et Cie.*  
 Ducancel, Gouthiere & Co., 1034.  
 Duchatellier, J., 2742.  
 Duchemin, A., 1006B.  
*Duchemin, R., see A. Pages.*  
 Duchemin, R., 2415, 2419.  
 Duchemin, R., and J. Dourlen, 2418.  
 Ducher, E., 2900.  
 Duchesne, L., 2677, 2678.  
 Duchesne, J., 2738.  
 Duchesne, L., and E. Michel, 2658, 2740.  
 Duchochois, P., 2801, 2818, 2820, 2824, 2825, 2826, 2829, 2832, 2834, 2835, 2866, 2906, 2915.  
 Duchois, 2808.  
 Duchy, 2833.  
 Ducktown Sulfur, Copper and Iron Co., 1076, 1297, 1298.  
 Duclaux, 343, 413.  
 Duclaux, E., 408.  
 Duclaux, J., 402, 1769, 1885, 2081, 2497, 2498, 2501, 2557, 2624, 2630, 3053.  
 Duclaux, J., and A. Hamelin, 1776.  
 Duclaux, J., and E. Wollman, 1749.  
 Duclos, E., 1010.  
 Ducomet, H., and A. Girard, 460.  
*Ducommun-Mueller, A., see A. Montbaron.*  
*Ducos du Hauron, L., see L. du Hauron.*  
 Ducreux, J., 474, 480.  
 Ducros, J., 1638.  
 Ducruet, J., 1783.  
 Duddell, W., 2735.  
 Dudgeon, G., 492.  
*Dudley, see Sims-Dudley.*  
 Dudley, P., 1635.  
 Dudley, W., 2482.  
*Duell, G., see C. Lintner.*  
 Duren, C., 2895, 2904.  
 Duering, 238.  
 Düring, E., 231, 232.  
*Durkes, K., see W. Muller.*  
*Dürkes, K., see F. Raschig.*  
*Dürkheim, see J. Simon.*  
*Düron, A., see R. Desouches.*  
 Düron, A., 1072, 1091, 1223, 1235, 1290, 1354, 1357, 1372, 1374, 1382, 1389.

- Duerr & Co., 290.  
*Duerre, F., see O. Engels.*  
 Düsseldorf Celluloid Fabrik, 2539,  
     2578, 2670, 2675, 2754, 2771.  
 Dufay, A., 2029.  
 Dufay, L., 2749, 2876, 2877.  
 Duffec, J., 2585.  
 Dufour, J., 430.  
 Dufour, L., 1058.  
 Dufur and Le Chatelier, 1361.  
*Dugas, E., see A. Aignan.*  
 Dugour, H., 2493, 2617.  
 Duhem, P., 1014.  
 Duin, C. van, and B. van Lennep,  
     2553.  
 Duimat, E., 2613, 2624.  
 Duisberg, C., 717, 1485.  
 Dujardin, 2413, 2452.  
 Dujardin, F., 1014.  
 Dujardin-Beaumetz, 2473.  
 Dujardin-Beaumetz, and Audige,  
     2451.  
 Duke, 669.  
*Dulcken, E., see W. Robinson-Bindley.*  
 Dulfus, L., 295.  
 Dulitz, A., 1900, 2640, 2641, 2651.  
 Dulitz, H., 2972.  
 Dullo, I., 100.  
 Dulong, P., 717.  
 Dulong, P., and J. Berzelius, 669.  
 Dulong, P., and A. Petit, 716.  
 Du Mahaut, L., 2726.  
 Dumars, H., 1004.  
 Dumas, 163, 971, 1884, 1902, 2315,  
     2786.  
 Dumas, Edwards, Boussingault, and  
     Payen, 325.  
 Dumas, A., 1572, 2982.  
 Dumas, A., and Payen, 1572.  
 Dumas, E., 2575, 2982.  
 Dumas, F., 1624.  
 Dumas, J., 669, 710, 721, 1014, 1571,  
     1572, 2470, 2511.  
 Dumas, J., and J. Boussingault, 669.  
 Dumas, J., and E. Peligot, 2500.  
 Dumas, J., and J. Stas, 2470.  
 Dumas, M., 2519.  
 Dumas-Guilin, M., 1635.  
*Dumes, A., see G. Bauge.*  
 Dumons, L., 1970, 1972, 2006, 2968.  
*Dumont, see W. Schmidt-Dumont.*  
 Dumont, G., and S., 1073.  
*Dumont, S., see G. Dumont.*  
 Du Motay, C., and A. Rossi, 2493.  
 Dumoulin, 669.  
 Dumreicher, O., 710, 713.  
*Dunbar, L., see A. Richter.*  
*Duncan, see Bindley.*  
 Duncan, D., 2850.  
 Duncan, G., 2792.  
 Duncan, H., 1006B.  
 Duncan, J., and New Sunlight Incan-  
     descent Co., Ltd., 2595.  
 Duncan, K., 5.  
 Dungan, T., 2407.  
 Dunham, H., 2646, 2760, 2779.  
 Dunke, E., 2484.  
*Dunkin, J., see C. Westwood.*  
 Dun Lany, W., 2715.  
 Dunlap, F., 2418.  
 Dunleavy, J., 2687.  
 Dunlop, J., 2677.  
 Dunlop Rubber Co., 2553.  
 Dunlop Rubber Co., and J. Worth-  
     ington, 2725.  
 Dunmore, 2820.  
 Dunmore, E., 2906, 2918.  
 Dunn, 669, 2970.  
 Dunn, B., 742, 1918, 1927, 2562.  
 Dunn, J., 1058, 1276, 1317, 2789,  
     2790, 2794.  
 Dunn, W., 2725, 2726.  
 Dunne, V., 2680.  
 Dunnet and Spanton, 2788.  
 Dunning, H., 2770.  
*Dunningham, A., see T. Hutchins.*  
 Dunnington, F., and M. Hill, 2563.  
 Dunsby, E., 2860.  
 Dunsmore, A., 2122.  
 Dunstan, A., 1318, 1722, 2279, 2405,  
     2436, 2437, 2501.  
 Dunstan, A., and T. Hilditch, 2398,  
     2490.  
 Dunstan, A., and H. Langton, 2279.  
 Dunstarf, A., and F. Thole, 2462.  
 Dunstan, A., and R. Wilson, 1318,  
     2270.  
 Dunstan, G., 268.  
*Dunstan, W., see E. Goulding.*  
 Dunstan, W., 2454.  
 Dunstan, W., and J. Hill, 953.  
 Dunsterville, F., 2866.  
*Dunville, W., see R. Gilmour.*  
*Dunville & Co., see Gilmour.*  
 Dunville & Co., and Gilmour, 3048.  
*Dunville, W., & Co., see R. Gilmour.*  
 Dunville & Co., W., 2395.  
 Dunwoody, R., and J. Wills, 2608.  
 Dupaquier, 669.  
 Duparc, L., 1006.  
 Duparc, L., and C. Urfer, 917.  
 Du Pasquier, A., 1343.  
*Duperthuis, H., see P. Dutoit.*  
*Dupetit, G., see U. Gayon.*  
*Du Pont, see du Pont.*  
*Dupont, L., see Darasse Freres.*  
*Dupont, L., see Societe Darrasse,*  
     *Freres.*

- Duppa, B., see E. Frankland.*  
 Dupper, C., 2718.  
 Duprat, A., 2760.  
 Dupre, 603, 2305, 2355, 2361, 2362, 2364.  
 Dupre, A., 1640, 1857, 2473.  
*Dupuis, C., see E. Dupuis.*  
 Dupuis, C., 2894.  
 Dupuis, E., 2898.  
 Dupuis, E. and C., 2749, 2910.  
 Du Puy, C., 2678.  
 Duquesnoy, J., 2744.  
 Duquesnoy, J., 2624.  
 Duquette, J., 2711.  
 Durand, 2859.  
 Durand, C., 2630, 2856, 2868.  
 Durand, P., 2722.  
 Durand, Huguenin and Co, 1223, 2771.  
*Durand et Huguenin, Soc. Anon., see Durand, Huguenin & Co*  
 Durando, P., 2682, 2711, 2715.  
 Durandon, 2786.  
*Durant, see Boyd.*  
 Durant, 2786.  
*Durant, H., see W. Hommel.*  
 Duratex Co., 2608.  
 Durden, 2786.  
 Durden, E., 2795.  
 Durdey, 2795.  
 Durgin, A., 2715.  
*Durham, T., see F. Bingham.*  
 Durieux, O., 427.  
 Durin, E., 5, 340, 2475.  
 Durnford, A., *see C. Curtis.*  
 Durnford, A., *see A. Luck.*  
 Durnford, A., 2124.  
 Durnford, E., *see A. Luck.*  
 Durnford, E., *see R. Griffith.*  
 Duroy, J., 413.  
 Durr & Co., 306.  
 Durran, T., 2493.  
*Durrans, T., see A. Boake.*  
*Durrans, T., see G. Boileau.*  
 Durrans, T., A. Boake, and Roberts & Co., 3001.  
*Durre, F., see O. Engels.*  
 Durst, G., 2609.  
 Duruht, A., 2418.  
 Duryea, C., 426, 479.  
 Duryea, R., 425.  
 Duryea, H., 425.  
 Duryea, W., 425.  
 Duryee, G., 1075.  
 Dushman, S., and J. Bain, 2408.  
 Dussauce, H., 1620.  
 Dusseldorf, 2660.  
 Dussen, E., 426.  
 Dussol, 2825, 2834, 2837.  
*Dussy, J., see J. Brunhes.*  
 Dut, B., and S. Sen, 700.  
*Dutcher, H., see H. Lee.*  
 Duter, E., 1013.  
 Dutilh, 2398.  
 Dutkiewicz, M., 2900.  
 Dutoit, P., and H. Duperthuis, 2436.  
 Dutschke, H., 568, 2638.  
 Dutt, B., B. Chatterji, and H. Banerji, 669.  
*Dutt, E., see P. Dutt.*  
 Dutt, P. and E., 1076.  
 Duttonhofer, C., 1704, 1785, 2251, 2952, 2954, 2956, 2977, 2983.  
 Dutton, J., 227.  
 Duval, 2779.  
 Duval, M., 2781.  
 Duvillier, E., and A. Buisine, 2536.  
 DuVivier, J., 2993.  
*Duxbury, H., see R. Hall.*  
 Duyke, M., 2651.  
*Dvorkovitch, P., see Y. Ragosine.*  
 Dwight, A., 1014.  
 Dworsky, A., *see H. Colbyson.*  
 Dworzanczyk, S., *see Doroszewsky.*  
 Dyar, S., 2603.  
 Dye, J., and W. Lucas, 1276.  
 Dyer, B., 2318.  
 Dyer, F., 2877.  
 Dyer, R., 2608.  
*Dyken, B. van, see B. Dijken.*  
*Dyle, see Soc. Anon. Dyle.*  
 Dymond, T., and F. Hughes, 1058.  
 Dynamit Actienges. vorm A. Nobel & Co., 240, 568, 624, 699, 1444, 1467, 1823, 1824, 1826, 1876, 1973, 2031, 2512, 2959, 2966, 2979.  
*Dynamit Actienges. vorm. A. Nobel & Co., see also Aktien Ges. Dynamit Nobel.*  
 Dynamite Manufacturing Co., 240, 1616.  
 Dypowski, J., and Societe Textile du Centre, 330.  
 Dyson, E., 1363, 1391.  
*Dyson, J., & Co., see S. Dyson.*  
 Dyson, S., and J. Dyson & Co., 2564.  
 Eales, 2945.  
 Eales, H., 1624.  
 Eales, W., 1806, 1878.  
 Eames, H., 1033.  
*Earle, E., see W. Reid.*  
 Earle, R., 2923, 2928.  
 Earle, R., and I. Kyriakides, 2390.  
 Earles, W., H. Robertson, F. Mote, and T. Cartwright, 2569.  
 Early, S., A. Christiansen, The

- Farrington Works, and H. Pontifex & Sons, 657, 2554, 2555.  
*East, see C. Hopkins.*  
 East, F., 2800.  
 Eastern Dyaamit Co., 1827.  
 East India Company, 487.  
*Eastman, G., see W. Walker.*  
 Eastman, G., 2749, 2877, 2888, 2898, 2917.  
 Eastman, G., and W. Walker,\* 2688, 2808.  
 Eastman, H., 920, 926.  
 Eastman Dry Plate and Film Co., 2403.  
*Eastman Kodak Co., see H. Clarke.*  
 Eastman Kodak Co., 2889.  
 Eastman Phot. Mat. Co., 2891.  
 Easton, J., 2766.  
 Easton, W., 669, 898.  
 Eastwick, J., 1299.  
*Eastwood, J., see P. Reid.*  
*Eastwood, J., see J. Schuhmacher.*  
 Eaton, 293.  
 Eaton, A., 2764.  
 Eaton, F., 2730.  
*Eaton, R., see D. Ashworth.*  
 Ebell, P., 1074.  
 Ebelmen, J., 2446.  
 Ebelmen, J., and Bouquet, 2446.  
 Eberdt, O., 398.  
 Eberhard, O., 2670, 2673, 2694, 3067, 3080.  
 Eberhard, O., and O. Mierisch, 2760.  
 Eberle, E., 2794.  
*Eberlein, L., see F. Rothenbach.*  
 Eberlein, W., 2945, 2962.  
 Ebermayer, E., 397.  
 Ebersson, A., 2563, 2567.  
 Ebert, A., 2601.  
*Ebert, C., see H. Carls.*  
*Ebert, L., see H. Carls.*  
*Ebert, W., see J. Nussbaum.\**  
 Eborit-Gesellschaft, 2766.  
 Ebough, W., and C. Sprague, 1056.  
 Ecernot, J., 1011.  
 Eccleston, W., 2703.  
 Echegut, L., 295.  
*Eck, E., see T. Eck.*  
 Eck, E., and E. Bechtel, 74.  
 Eck, J., & Sons, 232, 2639, 2646.  
 Eck, T., 74, 2639, 2643, 2653.  
 Eck, T. and E., and F. Pollak, 74.  
*Eckardt, M., see E. Collet.*  
*Eckardt, M., see M. Moest.*  
 Eckenbrecher, v., 458.  
 Eckersley, W., 2686, 2694.  
 Eckhartshausen, 725.  
 Eckland, E., 430.  
 Eckman, C., 290, 306, 391.  
 Eckmann, F., 2475.  
 Eckstein, F., 2593, 2611, 2660, 2677, 2684, 2752.  
 Eckstroem, 125.  
 Eckstrom, G., 201.  
 Ecob, J., 226, 227, 3065.  
 Ecorcite, Ltd., 2603.  
*Edeleanu, L., see C. Istrati.*  
 Edeleanu, L., 1099.  
 Edeleanu, L., and G. Filiti, 2904.  
 Edenborough, H., H. Broadbent, and H. Fearnley, 2122.  
 Eder, J., 1631, 1646, 1647, 1650, 1658, 1721, 2581, 2797, 2802, 2803, 2804, 2805, 2806, 2809, 2814, 2815, 2816, 2818, 2819, 2820, 2821, 2824, 2837, 2853, 2899, 2870, 2871, 2873, 2874, 2882, 2884, 2889, 2905, 2906, 2913, 2969, 3020.  
 Eder, J., and V. Toth, 2810, 2818, 2822, 2824, 2837, 2845, 2875.  
 Eder, J., and Pizzighelli, 2853.  
 Eder, J., and E. Valenta, 1014, 2853, 2920.  
*Edgar, A., see G. Lewis.*  
 Edge, W., 2681.  
*Edger, A., see N. Glendinning.*  
 Edinger, A., and J. Ekeley, 1037.  
 Edison, T., 111, 2384, 2681, 2735, 2736, 2766, 2771.  
 Edison, T., and J. Aylsworth, 2735.  
 Edkins, W., 2705.  
 Edlich, P., 227, 3065.  
 Edlund, A., 2620.  
 Edme, E. Saint, 2832.  
 Edmunds, H., 2597.  
 Edmunds, J., 1070, 1086, 1088.  
 Edmunds, K., 1811.  
 Edsen, J., 2898.  
*Edson, E., see E. Kipper.*  
 Edson, J., 1633, 2148, 2149, 2609, 2619, 2667, 2671, 2672, 2673, 2677, 2680, 2682, 2688, 2707.  
 Edstrom, J., 669.  
*Edwardes, V., see O. Kress.*  
*Edwardes, V., see S. Wells.*  
 Edwardes, V., 321.  
*Edwardes, see Dumas.*  
*Edwardes, see E. Price-Edwards.*  
 Edwards, 2896.  
 Edwards, A., 2658, 2892, 2912, 2916.  
 Edwards, B., 2735, 2891, 2898, 2908, 2916.  
 Edwards, E., 2864, 2906.  
 Edwards, F., and H. Ransom, 2891.  
*Edwards, J., see Anglo-French, F. and S., Ltd.*  
 Edwards, J., 1588.  
 Edwards, T., 1073, 1078.

- Edwards, W., see F. Brown*  
*Edwards-Ker, D., see A. Burgess.*  
*Edwin, E., see E. Troye*  
 Edwin, E., 849.  
 Efrem, O., and J. Klaudy, 1114.  
 Efremoff, N., 2515.  
*Effront, J., see A. Bodin.*  
 Effront, J., 126, 391, 915, 2396, 2410, 2440, 2463, 2481.  
*Egbert, H., see A. Heimrod.*  
 Egells, H., 950, 1360.  
 Egger, E., 732.  
 Egerton, A., 717, 2325, 2335, 2337.  
*Egerlon, J., see G. Winterbottom*  
 Egestorff's Salzwerke, 1074, 1086.  
 Egge, F., 2704, 2708.  
 Egge, F., and N. Beacff, 2677, 2708.  
 Egge, F., and N. Miles, 2705.  
 Egger, H., 2610.  
 Eggert, E., 2703.  
 Eggert, H., 234.  
 Eggert, J., 915.  
 Eggertz, C., 520.  
*Eghis, E., see W. Markownikow.*  
 Eggleston, J., 1291.  
 Egner, O., 2578.  
 Egoroff, and A. Remmer, 295.  
 Ehman, J., 2410.  
 Ehninger, T., 2643.  
 Ehninger, T., and R. Panke, 2613.  
 Ehrenberg, 389.  
 Ehrenfeld, R., 1336.  
 Ehrlie, 2791.  
 Ehrlich, 2651.  
 Ehrlich, F., 2420, 2463, 2464, 2478, 2483.  
 Ehrlich, F., and K. Jacobsen, 2479.  
 Ehrlich, F., and P. Pitschimuka, 2479.  
 Ehrlich, F., and A. Wendel, 2479.  
*Ehrlich, L., see F. Russ.*  
*Ehrlich, R., see R. Kremann.*  
 Ehrlich, V., and F. Russ, 609, 695, 901.  
 Eibner, A., and O. Hue, 2570.  
 Eichelbaum, G., 290.  
 Eichler, H., 2067.  
 Eichengrün, A., 2545, 2678, 2735, 2988, 2991, 3013, 3034, 3038, 3040, 3043, 3044, 3047, 3052, 3057.  
 Eichengruen, A., and F. Bayer & Co., 3010.  
 Eichengruen, A., and T. Becker, 3006.  
 Eichhorn, E., 295.  
 Eichhorn, H., 459.  
 Eichhorn, K., 1078.  
 Eichhorn, K., and M. Liebig, 1077.  
 Eichhorn, O., 2460.  
*Eichhorn, W., see F. Henrich.*  
 Eichler, T., and Badische Anilin & Soda Fabrik, 2649.  
 Eichmann, R., 295.  
 Eicke, 1086.  
 Eicken, H. van, 2560.  
*Eickstedt, W., see J. Ellis.*  
 Eijkmann, J., 2442.  
 Eilenburger Celluloidstoffabrik, 2904.  
 Eilertsen, L., 2579, 2739, 2771.  
*Eilfeld, F., see W. Reents.*  
 Eilsart, A., 1014, 1058.  
*Einecke, A., see G. Lemmermann.*  
*Einhorn, A., see E. Bamberger.*  
 Einstein, A., 1746.  
*Eisemann, see Zühl.*  
 Eisemann, R., 2543, 2595.  
 Eisenberg, A., 2924.  
 Eisenhart, M., 2562.  
 Eisenlohr, E., 2505.  
 Eisenlohr, F., 2398, 2466, 2490, 2491, 2501, 2996.  
 Eisenlohr, W., 2815.  
 Eisenmann, R., and J. Bendix, 2596.  
 Eisentraut, R., 657, 2649.  
 Eisenwerke, Laufach, 1072.  
*Eissler, F., see H. Pringsheim.*  
 Eissler, M., 1635, 2943, 2945.  
 Eitner, P., 1100.  
 Eitner, W., 306, 2618.  
 Eitner, W., and R. Kind, 2602, 2771.  
*Ekeley, J., see A. Edinger.*  
 Ekert, C., 2627.  
 Ekman, C., 286, 442.  
*Ekstrom, see Wallin.*  
 Ekström, 148, 303.  
*Ekstrom, G., see Aktiebolaget Ethyl.*  
 Ekstrom, G., 295, 306.  
 Ekstrom, G., and Aktiebolaget Ethyl, 2420.  
 Ekstrom, P., 657, 664, 2420, 3009.  
 Ektel, 1049.  
 Elb, M., 290, 306.  
 Elbee, 2627.  
 Elbers, W., 65.  
 Elbert, A., 2630.  
*Elbert, J., see A. Stahler.*  
 Elbert, J., 898, 934.  
*Elborn, S., see W. Elborn.*  
 Elborn, W. and S., and A. Board, 428.  
 Elbs, K., and K. Brand, 2396, 2435.  
*Elder, H., see F. Matthews.*  
 Eldred, B., 1075, 3023.  
 Electric Furnace Products Co., Ltd., 2995.  
 Electric and Ordnance Accessories Co., and R. HaP, 2977.  
*Elektrisk Kvaestofabriksskab, see*

- Norsk Hydro-Elektrisk Kvælstof-aktieselskab.*  
*Elektrizitätswerk Lonza, see H. Danneel.*  
 Elektrizitätswerk Lonza, 688, 847, 848, 933, 934, 939, 1004, 1129, 1301, 2388, 2424.  
 Elektrochemische Werke, G. m. b. H., 255, 700, 701, 721, 722, 912, 937, 982, 983, 999, 1004, 1006, 1006B, 2420, 3004.  
 Elektrochem. Werke, and F. Rothe, 684.  
 Elektro-Material Gesellschaft, 2701.  
*Elektron, see Chemische Fabrik Griessheim-Elektron.*  
 Elektro-Osmose Aktien Gesellschaft, 27, 657, 2125, 2148, 2246, 3022.  
 Elfert, 238.  
 Elia, G., 2982.  
 Eliasberg, S., 1055.  
 Eliel, O., 1210, 1212, 1239, 1271, 1287.  
 Eliot, 2823.  
 Eliot, P., 2564, 2567.  
 Ellenberger, W., 345.  
 Ellenberger, W., and V. Hofmeister, 418.  
 Eller, R., 2771.  
 Ellerbeck, J., 2887.  
 Ellett, W., and B. Tollens, 367.  
 Elliff, P., 2906.  
 Elliot, A., 1591, 1850, 1851.  
*Elliot, C., see G. Audres.*  
 Elliot, J., 1591.  
 Elliot, J., 2702.  
 Elliot, W., 2875.  
*Elliot, C., see G. Anders.*  
 Elliott, J., 2721, 2808.  
 Elliott, J., and T. Sutton, 2802, 2805.  
 Elliott, W., 2735.  
 Ellis, A., 1830.  
*Ellis, C., see C. McCourt.*  
*Ellis, C., see K. McElroy.*  
 Ellis, C., 275, 295, 306, 335, 703, 802, 916, 919, 938, 939, 1006, 1076, 1111, 1120, 1122, 1783, 2492, 2493, 2530, 2543, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2583, 2617, 2888, 3018, 3023, 3042.  
 Ellis, C., and K. McElroy, 3004.  
 Ellis, C., N. Foster, and Ellis-Foster Co., 2771.  
 Ellis, C., and L. Rabinovitz, 2771.  
 Ellis, C., and H. Weber, 1120.  
 Ellis, J., 2586.  
 Ellis, J., and W. Eickstedt, 2735.  
 Ellis, R., 2530.  
*Ellis, W., see A. Boake.*  
*Ellis-Foster Co., see C. Ellis.*  
*Ellis-Foster Co., see A. Wells.*  
 Ellison, H., 1356.  
 Ellison, R., 2395.  
 Ellram, 243, 262.  
*Ellrodt, see E. Parrow.*  
 Ellrodt and Kunz, 2425.  
 Elmer, W., 2600.  
*Elmore, A., see W. Elmore.*  
*Elmore, W., see W. Smith.*  
 Elmore, W. and A., and H. Barrett, 1075, 1292.  
*Elod, E., see A. Koenig.*  
 Elsasser, E., 74, 2497, 2499, 2500, 2501, 2504, 2505, 2506, 2507, 2508, 2509, 2630, 2639.  
*Elsberg, see Kraemer & Elsberg.*  
*Elsberg, van, see Kraemer.*  
*Elsberg, van Ges., see G. Kraemer.*  
 Elsching, A., 2781.  
 Elsdon, J., 2914.  
 Elsner, W., 3023.  
 Elsner, W., and O. Meyer, 2400.  
 Elster, J., 2494.  
 Elsworthy, H., 2475.  
 Eltekoff, A., 2451.  
*Elting, see Adams & Elting Co.*  
 Elvove, E., 2425.  
 Elwel, 2819.  
*Elworthy, E., see Lance.*  
 Elworthy, H., and D. Lange, 1087.  
*Elworthy, V., see D. Lance.*  
 Ely, A., 2611.  
 Ely Bros, 2953.  
*Emaillée, see Firma L'Emaillée.*  
 Embree, R., 295.  
*Eme, A., see S. Pagliani.*  
 Emerson, E., 2826.  
*Emerson, F., see F. Spelsbury.*  
 Emerson, V., 2735.  
 Emery, T., and W. Adkins, 2735.  
 Emhardt, J., 1788.  
 Emich, F., 713, 714, 715.  
 Emmens, S., 534, 1303, 1816, 2048, 2965.  
 Emmerich, G., 2780.  
 Emmerling, E., and A. Oppenheim, 2505.  
 Emmerling, O., 2478, 2483.  
 Emmet, J., 1, 475, 669.  
 Empire Duplex Gin Company, 638.  
 Empsell, J., and E. Firth, 226, 233.  
 Encke, 1071.  
*Ende, C., see L. Andrews.*  
*Ende, E., see P. Marcelin.*  
 Endemann, 2770.  
 Endemann, H., 477, 1058.  
*Endert, see Van Endert.*  
 Enecke & Fischer, and J. Frank,



2909.  
 Enell, O., 2564.  
 Engel, E., 2501.  
 Engel, F., 1811, 2944, 2956.  
 Engel, H., 2687, 2721.  
 Engel, R., 1014.  
 Engelhardt, A., 1100.  
*Engelhardt, F., see C. Peck.*  
*Engelmann, see Schenke.*  
 Engelmann, F., 2771.  
 Engels, F., 2688.  
 Engels, J., 1629, 1819, 1867, 2705, 2708, 2750, 2955, 2968.  
 Engels, O., and F. Duerre, 702, 985.  
 Engels, M., 1448.  
*Engeroff, F., see A. Gultier.*  
 Engi, G., 2771.  
 England, 2825.  
 England, R., 1366.  
 England, W., 2826, 2829, 2831, 2832, 2835, 2886, 2887, 2889, 2918.  
*Engelhardt, see Dohne.*  
 Engler, C., 85.  
 Engler, C., and J. Weissberg, 1260.  
 Engler, C., and L. Wöhler, 1133.  
 Engles, O., and F. Durre, 900.  
 Engleskirschen, P., 802, 3009.  
 English, E., 2494, 2495.  
 Englische Wollenwaren Manufaktur, 2603, 2642.  
 English Woolen Manufacturers Association, 2625.  
*English Woolen Manufacturers Association, see also Englische Wollenwaren Manufaktur.*  
 Engraved Wood, Ltd., 2612.  
 Enjolras, L., 2827, 2837, 2841, 2847, 2895.  
 Enke, 1079.  
 Enke, F., 1078.  
 Ensell, H., 1076.  
 Ensign, C., 2706.  
 Ensminger, H., 2542, 2754, 2755, 2760.  
*Entat, M., see E. Vulquin.*  
 Enz, K., 2570.  
 Ephraim, F., 236.  
 Ephraim, J., 850, 2983.  
 Ephrem, O. 2594.  
 Eppendabe, F. 2627.  
*Eppens, A., see W. Koenigs.*  
 Epstein, J., 2619.  
 Erasmus, L., 2760.  
 Erban, E., 2641.  
 Erban, F., 65, 1891, 2640.  
 Erban and Feigensohn, 1260.  
 Erck, A., 985.  
 Ercole, A. d', 1006B.  
*Ercolini, G., see M. Levi.*  
*Erdman, E., see A. Ihl.*  
*Erdman, H., see A. Ihl.*  
 Erdmann, 66, 69, 242, 2278.  
*Erdmann, E., see F. Bedford.*  
 Erdmann, E., 1014.  
 Erdmann, E., and F. Bedford, 669.  
 Erdmann, E. and H., 243.  
 Erdmann, E., and C. Schaefer, 43, 58, 250.  
 Erdmann, H., 952, 953, 1687.  
 Erdmann, J., 196, 266.  
 Erdmann, O., and M. Mittenzwey, 1.  
 Erfurt, 518.  
 Erfurt, J., 2588.  
 Erichsen, E., 955.  
 Erkin, C., 669.  
 Erlenmeyer, E., 2428, 2438, 2448.  
 Erlenmeyer, E., and C. Hell, 2450, 2451.  
 Erlich, J., 1004.  
*Erlich, R., see R. Kreman.*  
 Erlwein, Warth, and Teutner, 926.  
 Erlwein, G., 669, 670, 848, 925, 927, 931, 934.  
 Erlwein, G., and A. Frank, 927.  
 Erlwein, G., and K. Warth, 927.  
 Erman, B., 226.  
 Ernest, 201, 1073.  
*Ernest, A., see H. Berger.*  
*Ernest, A., see F. Stoklasa.*  
 Ernest, A., 203.  
 Ernst, see Levy.  
 Ernst, 3078.  
 Ernst, A., 2563, 2564.  
 Ernst, C., 2630, 3067, 3068, 3071, 3072, 3074.  
 Ernst, C., and G. Hamlin, 3067.  
 Ernst, H., 2587.  
 Erouard, A., 985, 989.  
 Errant, G., see A. Angeli.  
 Errera, G., 2521.  
 Errera, L., 2745, 2866, 2881, 2910.  
*Errington, J., see V. Majerus.*  
*Erste Oesterr. Fabr., see C. Opl.*  
 Erste Oesterreichische Fabrik, 2649.  
 Erste Oesterreichische Glanzstoff Fabr. Aktien Gesellschaft, 74, 3064, 3068.  
 Erste Oesterreichische Sodafabrik, 290, 306, 1225, 1299, 3071, 3076.  
 Erste Offenbacher Gelatine-Folien und Flitter-Fabrik Koch & Liebmann, 2590.  
 Erste Prager Celluloid Kammwaren Fabrik Brüder Lux, 2696, 2715.  
 Erste Triester Reisschäl — Fabriks, Aktien Gesellschaft, 432.  
 Erster Celluloid-waren-Fabrik, 2679.  
 Ertel, J., 2675.

- Ertachikowsky, G.*, see *G. Wagner*.  
*Erwig, E.*, and *W. Koenigs*, 183, 2988.  
*Erwin, J. and O.*, 2559.  
*Erwin, O.*, see *J. Erwin*.  
*Ersbach*, see *W. Müller-Ersbach*.  
*Erzröstgesellschaft* Cöln., 1072.  
*Erzverwertungs Gesellschaft m. b. H.*, 1081.  
*Escales, R.*, 669, 736, 1757, 2324, 2338, 2348.  
*Escamez, J.*, and *A. Moriones*, 2736.  
*Eschaliar, X.*, 92, 234, 2625, 2639, 2649.  
*Eschellmann, G.*, 1107, 1110, 1246, 1247, 1891.  
*Eschellmann, G.*, and *A. Harmuth*, 1107, 1108, 1115, 1151.  
*Eschellmann, H.*, 1110.  
*Eschellmann, H.*, and *A. Harmuth*, 1110, 1113.  
*Eschenbach Printing Co. X.*  
*Eschmann, M.*, see *M. LeBlanc*.  
*Escholz, P.*, and *J. Altendorf*, 2771.  
*Esnault-Pelterie, R.*, 694, 703.  
*Escodoca*, 1918.  
*Escot*, see *E. Pozzi-Escot*.  
*Espenhahn, E.*, 689, 1031, 1041, 1088, 1089.  
*Esquiron*, see *Brodbeck*.  
*Esselen, G.*, see *H. Mork*.  
*Esselen, G.*, 1931, 2992, 3050.  
*Esselen, G.*, and *H. Mork*, 3012.  
*Esser and Scheider*, 227.  
*Esser, C.*, 295.  
*Esser, E.*, & *Co.*, 2641.  
*Essex, H.*, see *B. Brooks*.  
*Essex, H.*, and *I. Humphrey*, 2486, 2488.  
*Essex, H.*, *H. Hibbert* and *B. Brooks*, 2485.  
*Essner, J.*, 2592.  
*Estabrook, A.*, 2705, 2709.  
*Estabrooke, E.*, 2809.  
*Esteve & Co.*, 2567.  
*Estor, W.*, and *M. Terrero*, 1099.  
*Estreicher, T.*, 669, 1058.  
*Etablissements Lumiere & Jougla Reunis*, 2863.  
*Etablissements Maletta*, 2997.  
*Etard, A.*, 1058, 2432, 2513, 2521.  
*Etard, A.*, and *L. Olivier*, 1014, 1022.  
*Etiavant*, 2792.  
*Etiti, C.*, 2771.  
*Eugster, E.*, see *E. Schulze*.  
*Euler, E.*, 2442.  
*Euler, H.*, 187, 237, 2405, 2434, 2497, 2498, 2499, 2501.  
*Euller, M.*, see *C. Bensinger*.  
*Eumorfopoulos, N.*, and *Chappui*, 1034.  
*European Blair Camera Co.*, see *T. Blair*.  
*Eustace, J.*, 2585.  
*Eustis, F.*, see *U. Wedge*.  
*Eustis, F.*, 1086.  
*Evans, I.*, 1100, 2780, 2806, 2853, 2904.  
*Evans, C.*, 2601.  
*Evans, G.*, 1132, 1299.  
*Evans, I.*, 295.  
*Evans, I.*, and *J. McBryde*, 1011.  
*Evans, O.*, and *V. Griswold*, 2850.  
*Evans, P.*, 2425.  
*Evans, V.*, see *G. Munday*.  
*Evans, W.*, and *J. Day*, 2425.  
*Evans Artificial Leather Co.*, 2605.  
*Eve, A.*, 1058.  
*Everding, J.*, see *J. Hyatt*.  
*Everding, J.*, 2677, 2679.  
*Everlasting Valve Co.*, 1468, 1469, 1470, 1471, 1472, 1477.  
*Evers, I.*, 1457, 1458.  
*Evers, F.*, 2638.  
*Evers, R.*, 1212, 1239, 1280, 1356, 1391, 1440, 1447, 1448, 1449, 1450, 1451, 1452, 1453, 1454, 1455.  
*Eversbusch, O. v.*, 2918.  
*Evershed, J.*, 1014.  
*Eversheim, P.*, 1058.  
*Evrard*, see *Blanquard-Evrard*.  
*Evrard, M.*, 2826.  
*Ewan, T.*, and *T. Napier*, 669, 848, 934.  
*Ewart, A.*, 669, 951.  
*Ewen, M.*, and *G. Tomlinson*, 205, 657.  
*Ewing*, 2823.  
*Ewing, J.*, 2866.  
*Excelsiorwerk Fabrik für Feinmechanik*, 2738, 2757.  
*Exner, A.*, 717.  
*Exner, F.*, 1014, 1058.  
*Explosives Trades, Ltd.*, 1931.  
*Explosivstoff-Werke Spiralit Gesellschaft*, 1816, 1825, 2977.  
*Explosivstoff-Werke Spiralit Ges.*, and *M. Thorn*, 1825, 2982.  
*Eycken and Leroy*, see *Societe anon des Etablissements*.  
*Byclesheimer, A.*, 2781, 2782.  
*Eyde, S.*, see *K. Birkeland*.  
*Eyde, S.*, 869, 893.  
*Eyer, P.*, 2795.  
*Eymail, F.*, 2786.  
*Eyre, J.*, 2785.  
*Fabbri, S.*, 2419.  
*Faber, A.*, 2695.

- Faber, E., see W. Zänker.*  
 Faber, E., and R. Reid, 2509.  
 Faber, F. v., 243.  
 Faber, O., and B. Tollens, 25, 159, 171, 172, 174, 179.  
 Fabinyi, R., 2771.  
 Fabre, 2820, 2837, 2840, 2843.  
 Fabre, C., 2806, 2815, 2816, 2818, 2832, 2835, 2888, 2900.  
 Fabre, C., F. Garrigou, and L. Surre, 2478.  
 Fabre, F., 2802.  
 Fabre, J., 1034.  
 Fabre, R., 570.  
 Fabrie, A., 1011.  
 Fabrig, E., 958.  
 Fabrik Explosionssicherer Gefässe, 1924, 2560.  
*Fabrik der Glückkörper für Gasglühlicht, see C. Boehm.*  
*Fab. des Pates a Papier, etc., see Soc. anon. pour la Fab., etc.*  
 Fabriques de Produits de Chimie Organique de Laire, 2552, 2751, 2771.  
 Fab. Produits Chimiques, 2524.  
*Fabriques de Produits Chimiques Flora, Societe Anonyme, see A. Corti.*  
 Fabriques de Produits Chimiques de Thann et Mulhouse, 2441, 2450, 2477, 2478.  
 Fabrique de Soie artificielle d'Obourg, 2148, 2635.  
 Fabrique de Soie Artificielle de Tubize, 1370, 1392, 2557, 2624.  
*Färbereien v. J. Schetty Sonne, see Gebrüder Heine.*  
*Fagerlind, K., see H. Bergström.*  
*Fagerlind, O., see H. Bergström.*  
*Fagerlind, O., see P. Klason.*  
 Paget, V., 2471.  
*Faguays, see Le Faguays.*  
 Fahlberg, C., and M. Iles, 1014.  
*Fahlberg, List & Co., see Saccharin Fabrik.*  
 Fahrenwald, F., 1111, 1121.  
 Fahrg, E., 2597, 2611.  
 Fahrion, W., 1871.  
 Fahrner, A., 1063.  
 Faille, 2971, 2973.  
 Fair, J., 594.  
 Fairback, R., 2760.  
 Fairbanks Co., 1428, 1429.  
 Fairbrother, H., 2736.  
 Fairfax, J., 2891.  
 Fairley, A., 1290.  
 Fairlie, A., 1098, 1205, 1229, 1283.  
 Fairlie, R., 731.  
*Faivre, P., see P. Genvreese.*  
 Falconer, 2835.  
*Falding, F., see J. Channing.*  
 Falding, F., 1070, 1072, 1090, 1206, 1213, 1239, 1243, 1251, 1338, 1344, 1345, 1383, 1391.  
 Falding, F., and W. Cathcart, 1214.  
 Falding, F., and J. Channing, 1298.  
 Falk, H., 295.  
 Falk, K., and K. Sugiura, 609.  
 Falke, H., 296.  
 Falkenberg, O., 1045.  
 Falkenstein, *see* Petry  
 Falkenstein, *see* Trütschler-Falkenstein.  
 Falkenstein and Boehm, 2970.  
 Falkenstein, C., *see* G. Falkenstein.  
 Falkenstein, G. and C., 2601.  
 Falkenstein, J., and A. Boehm, 170, 2957.  
 Falkman, C., 2412.  
*Fallenstein, O., see T. Petry.*  
 Fallowfield, 2853, 2857, 2918.  
 Falsche, H., 1086.  
 Faltynek, F., 2790, 2794.  
 Famintzin, A., 393.  
 Famintzin, A., and J. Borodin, 393.  
 Faraday, M., 710, 713, 1058, 1103, 1575, 1577, 2820.  
*Farbenfabriken vormals F. Bayer & Co., see R. Berendus.*  
*Farbenfabriken vormals, F. Bayer & Co., see O. Bonhoeffer.*  
*Farbenfabriken vormals, F. Bayer & Co., see A. Eichengrün.*  
*Farbenfabriken vormals F. Bayer & Co., 4, 225, 230, 232, 293, 306, 415, 666, 698, 722, 896, 917, 923, 931, 943, 1003, 1006A, 1027, 1028, 1111, 1121, 1122, 1203, 1269, 1273, 1293, 1308, 1518, 1890, 1891, 2388, 2389, 2393, 2397, 2400, 2435, 2445, 2457, 2483, 2524, 2525, 2527, 2536, 2537, 2539, 2541, 2542, 2546, 2598, 2613, 2623, 2640, 2645, 2649, 2660, 2673, 2769, 2872, 2892, 2897, 2920, 2964, 2994, 2996, 3000, 3001, 3003, 3007, 3010, 3018, 3032, 3044, 3045, 3046, 3052, 3053, 3056, 3057, 3000.*  
 Farbenf. von F. Bayer & Co., and W. Dixon, 415.  
 Farbwerke Friedrichsfeld, P. Remy, 306.  
*Farbwerke Höchst, vormals Meister, Lucius und Brüning, see M. Moest.*  
 Farbwerke Höchst, vormals Meister, Lucius und Brüning, 89, 91, 225, 230, 300, 674, 684, 695, 703, 709, 714, 724, 852, 900, 921, 938, 939,

- 953, 986, 990, 993, 994, 1004, 1005,  
1006, 1100, 1103, 1105, 1107, 1108,  
1116, 1157, 1159, 1192, 1785, 1790.  
1894, 2457, 2469, 2488, 2501, 2514,  
2538, 2545, 2546, 2547, 2548, 2633,  
2641, 2750, 2751, 2774, 2848, 2859,  
2862, 2872, 2884, 2891, 2995, 2996,  
3001, 3003.  
Farbwerke Mulheim vorm A. Leon-  
hardt & Co, 2641.  
Farge, J. la, 2800.  
Fargier, A., 2827.  
Fargier, A., and R. Archibald, 2827.  
Fargier, A., and N. Charvet, 2750,  
2864.  
Faria & Co., 1880.  
Farjas, H., and A. Taboin, 2652.  
Farledter, 3079.  
Farley, T., 1014.  
Farmer, C., 1774.  
Farmer, E., and H. Tompkins, 2858.  
Farmer, J., 2993.  
Farmer, R., *see* P. Franklund.  
Farmer, R., *see* O. Silberrad.  
Farmer, R., 1932.  
Farmer, T., 1043.  
Farmer, T., and F. Lewis, 2868.  
Farmery, J., *see* T. Lowry.  
Farnand, 296.  
Farnworth, R., *see* H. Grandage.  
Farquharson, C., *see* R. Gubbins.  
Farr, H., 2814.  
Farrar, F., and F. Gill, 1306.  
Farrell, F., 415.  
Farrington Works, Ltd., *see* S. Early.  
Farup, P., 1111, 1120, 1299.  
Farwell, C., *see* J. McCloskey.  
Fassbender, G., 73.  
Faucher, L., 1014, 2740, 2658, 2758.  
Faucheux, L., *see* H. Cornette.  
Faucheux, L., 1291.  
Faucon, M., 2515.  
Fauconnier, A., 669.  
Faudel, M., 269.  
Faulkner, R., 2918.  
Faulkner, W., *see* T. Barrasford.  
Faure & Kessler, 1365, 1366, 1383.  
Faure, C., *see* S. Mackie.  
Faure, C., and G. Trench, 1623,  
2945, 2946.  
Faure, C. *see* E. Basse.  
Faure, M., and J. Kessler, 1390.  
Faust, 3064.  
Faust, A., *see* J. Yocum.  
Faust, A., 296.  
Faust, O., 1722.  
Faust, O., and G. Tammann, 2465.  
Fausten, A., and P. Bengs, 2482.  
Fausto, *see* Morano.  
Faver, L., 2575.  
Favier, A., 2945, 2977.  
Favier, E., 608.  
Faville, K., *see* J. Mathews.  
Favre, I., 2575, 2864, 2918.  
Favre, P., 710, 1014, 1058, 1060,  
1862.  
Favre, P., and J. Silbermann, 1014,  
1058, 2446, 2447, 2487, 2491, 2497,  
2501, 2507, 2508, 2509.  
Fawcett, Preston & Co., 669.  
Fawcett, E., 2883.  
Fawsitt, C., *see* W. Dittmar.  
Fawsitt, C., and A. Pain, 1321.  
Fawsitt, C., and C. Powell, 1321.  
Faxon, W., *see* G. Rolfe.  
Fay, A., 2928.  
Fayolle, E., 2771.  
Fayt, G., 2031.  
Fazi, R. de, 2421.  
Fearnley, H., *see* H. Edenborough.  
Feary, N., *see* F. Sage & Co., Ltd.  
Feasey, *see* Chambers and Feasey.  
Featherstone, W., 2881.  
Febie, N. le, and N. Lemery, 1007.  
Febvre, J., 2555.  
Fechter, C., 2712.  
Feder, H., 2761.  
Federer, B., 430.  
Feericks, R., 87.  
Fehlissen, E., *see* W. Fehlissen.  
Fehlissen, W., and E., 1617.  
Fehling, 133, 201, 1583, 1647.  
Fehling, Roser, and Krauss, 1571.  
Fehling, H., 97, 2471.  
Fehrenbach, G., *see* A. Nobel.  
Fehringel, M., 2586.  
Fehrmann, A., 1360.  
Fehrmann, C., 453, 463.  
Feidt, G., 2563.  
Feierabendt, 2817.  
Felge, A., *see* A. Maignon.  
Feige, A., *see* A. Verley.  
Feigensohn, *see* Erban.  
Feigensohn, 1218.  
Feigensohn, M., 1157, 1240.  
Feigl, F., 669, 934.  
Feil, *see* C. Pisseau-Feil.  
Feilitzen, H. v., 669, 934.  
Feilmann, *see* Bagley.  
Feist, F., and H. Belart, 2401.  
Feist & Co., A., 2696.  
Feitle, S., 3053.  
Feix, O., 2610, 2620.  
Feld, W., 927, 941, 1006, 1028, 1030,  
1031, 1063, 1070, 1068.  
Feldhaus, S., 961.  
Feldkamp, F., 2690, 3005.  
Feldman, H., 2620.

- Feldmühle Papier und Zellstoff-  
 werke, 306.  
 Feldschmid, J., 296.  
 Felgate, R., 669.  
 Feliciani, C., 717.  
 Fell, A., 2574, 2601.  
*Fell, J., see J. Symonds.*  
 Fellenberg, von, 249.  
 Fellenberg, T. v., 354, 1327, 2408,  
 2411, 2445, 2484.  
*Fellowes, E., see W. Hyatt.*  
 Fels, J., 1210, 1223, 1290.  
*Feltmann, A., see H. Hartwig.*  
 Felton and Guilleaume-Lahmeyer-  
 werke, 2660.  
 Fendler, G., 2410.  
 Fendler, G., L. Frank and W. Strüber,  
 2570.  
 Fenger, 2786.  
 Fennemore, G., 2818.  
 Fenton, H., 185, 206, 211.  
 Fenton, H., and M. Gostling, 14,  
 109, 185.  
 Fenton, H., and H. Jackson, 2457.  
 Fenton, R., 117.  
 Feraud, P., 2695.  
*Ferber, H. v., see E. Müller.*  
 Ferenczi, S., 277, 306, 2616, 2658,  
 2670, 3063, 3076.  
 Ferguson, 1201, 1202.  
*Ferguson, C., see G. Mackay.*  
 Ferguson, G., 2538, 2390, 3023, 3031.  
 Ferguson, J., 1096, 1098.  
 Ferguson, J., and P. Manning, 687.  
*Ferguson, W., see T. Middleton.*  
 Ferguson, W., 1113, 1200, 1316, 1548,  
 1549.  
*Fernandes, F., see E. Knecht.*  
 Fernandez, O., 2534.  
*Fernbach, A., see L. Maquenne.*  
*Fernbach, A., see J. Wolff.*  
 Fernbach, A., 389, 402, 437, 440,  
 443, 482, 2397, 2484.  
 Fernbach, A., and M. Schoen, 443,  
 468, 479.  
 Fernbach, A., and E. Strange, 2397,  
 2445, 2465, 2484.  
 Fernbach, A., and J. Wolff, 402, 427,  
 442, 443, 467, 470, 473.  
 Fernbach, E., 125.  
 Ferns, J., and A. Lapworth, 2535.  
 Ferraguti, A., 2601.  
*Ferrand, C., see J. Kessler.*  
 Ferrand, F., 619.  
 Ferrand, J., 296.  
 Ferranti, S. de, 848.  
 Ferrari, G., 2443.  
 Ferrario, E., and F. Fagetti, 2445.  
 Ferraris, A., 1276.  
 Ferrere, P., 1081.  
 Ferret, 2809.  
 Ferret, J., 2811, 2818.  
*Ferrier, see Davanne.*  
 Ferrier, 1623, 2798, 2821, 2825,  
 2835.  
 Ferrier and Soulier, 2828.  
*Ferrier, E., see R. Liesegang.*  
 Ferrier, F., 2837.  
 Ferrier, J., 2827, 2866, 2887, 2901,  
 2907.  
 Ferrier, M., 2814.  
 Ferriter, J., 2593.  
 Ferriter, J., and C. Peters, 2593.  
 Ferwer, 100.  
 Fesca, A., 457.  
 Fess, C., 2508.  
 Fessmann, L., 2644, 2651.  
 Fest, A., 296, 306, 657.  
 Festeau, 2885.  
 Festy, A. von, 296.  
*Fetridge, see J. McFetridge.*  
 Feuer, R., \*see A. Oppenheim.  
 Feval, 1762.  
 Feval, L., 1773, 2599, 2620, 2621,  
 2785.  
 Few, C., 2750, 2898.  
 Fiberloid Co., 2667.  
 Fiber Products Co., 2604.  
 Ficheissen and Becker, 2920.  
 Fichter, F., 660, 944.  
 Fichter, F., and H. Kappeler, 944.  
 Fichter, F., and G. Oesterheld, 669,  
 934.  
 Fichtmueller, J., 2587.  
 Fick, A., 1768.  
 Fiedler, M., 2947.  
 Field, C., 1893.  
*Field, E., see G. Barger.*  
*Field, J., see H. Ujhely.*  
 Field, J., 392, 958, 959, 2475,  
 2682.  
 Field, J., and H. Ujhely, 2453.  
 Field, W., 1639, 2580, 2605, 2619,  
 2692, 2771.  
 Fielden, J., 793.  
*Fielding, A., see H. Grandage.*  
 Fielding, A., 232, 429, 3068, 3070,  
 3071, 3077, 3078, 3081.  
 Field-Martin, 2781, 2782, 2783, 2784.  
 Fieldner, A., and S. Katz, 1089.  
 Fields, J., 2683.  
*Fiorlani, see Bayard.*  
 Fieschi, F., 848.  
*Fieselmann, G., see G. Haller.*  
*Fievel, H., see A. Germot.*  
 Fievez, C., 669.  
 Fifield, F., 2877.  
*Figuer, L., see J. Penmarada.*

- Figuer, L., 1572.  
 Filhol, E., and Lacassin, 1338.  
 Filhol, E., and Senderens, 1014.  
 Filhol, J., 3023.  
*Filitti, G., see L. Edeleanu.*  
 Fillion, O., 2574.  
 Filsinger, F., 2474.  
 Finch, G., 670, 1330, 1507.  
*Finch, L., see C. Bierbauer.*  
 Finch, L., 934, 3001.  
 Finch, M., and W., and S. Willoughby, 1071, 1224.  
 Finch, R., 1383.  
*Finck, see Will & Finck Co.*  
 Finck, G., 3014.  
 Finck, J., 2743.  
*Fincke, O., see O. Frank.*  
 Finckh, K., and W. Nernst, 715.  
 Finco, 2787.  
*Findeisen, see Livette.*  
 Findeisen, H., 2391.  
 Findlay, A., 1722, 2436, 2892.  
 Fine Cotton Spinners' and Doubler's Assoc., M. Cunningham, and C. Cross, 223.  
 Finger, A., and W. Menzel, 2580, 2610.  
 Finiels, F., 290.  
 Fink, 2812.  
*Fink, C., see M. Bodenstein.*  
 Fink, G., 125.  
*Fink, A., see O. Frank.*  
 Finkener, 1097.  
 Finkh, K., 701.  
 Finkler, A., 2615.  
 Finkler & Co., 2687, 2692.  
 Finlay, C., 2877.  
*Finney, A., see J. Coates.*  
 Finzi, G., 2366.  
 Fiorillo, L., 2754.  
 Fireman, F., 1309.  
*Firelard, see Gunnot.*  
*Firelard, G., see C. Gimonet.*  
 Firma Gebrüder Schubert, 2790.  
 Firma Kromfag Vegyeszeti Gyar Syabo es Tarsai, 2393.  
 Firma L'Emaillite, 3060.  
 Firman, W., and A. Cocksedge, 1227, 1335.  
*Firmenich, F., see J. Firmenich.*  
 Firmenich, J., and F., 454.  
 Firmin and Lassimonne, 2825.  
 Firmin and Lassimore, 2830.  
*First Austrian Soda Works, see Erste Oesterreichische Sodafabrik.*  
*Firth, E., see J. Empsall.*  
 Firth, J., 2564, 2591.  
 Fisch, 494.  
*Fischer, see Encke.*  
*Fischer, see D. Macht.*  
 Fischer and Brachmer, 693.  
 Fischer and Rosenfelder, 231.  
 Fischer and G. Zemplen, 189.  
 Fischer, A., 2470.  
 Fischer, A., and G. Delmarcel, 1303.  
 Fischer, B., 2454.  
 Fischer, C., 226.  
 Fischer, E., 6, 238, 424, 470, 657, 2391, 2410, 2719, 2771, 2991, 3052.  
 Fischer, E., and E. Armstrong, 182, 183.  
 Fischer, E., and H., 185.  
 Fischer, E., and K. Hoesch, 2308.  
 Fischer, E., and H. Noth, 657.  
 Fischer, E., and J. Tafel, 424, 1857.  
 Fischer, F., 7082, 1094, 2475.  
 Fischer, F., and F. Brachmer, 670.  
 Fischer, F., and W. Glud, 1099.  
 Fischer, F., and E. Hene, 670, 694.  
 Fischer, F., and M. Kleinstuck, 657.  
 Fischer, F., and H. Marx, 670, 693, 712.  
 Fischer, F., and H. Niggemann, 58, 206.  
 Fischer F., and W. Schneider, 236, 657, 663.  
 Fischer, G., 2747, 2909.  
*Fischer, H., see E. Fischer.*  
*Fischer, H., see W. Herz.*  
 Fischer, H., 389, 390, 898.  
 Fischer, J., 2472, 2670.  
 Fischer, K., and H. Alt, 670.  
*Fischer, L., see A. Huck.*  
 Fischer, N., 1100.  
*Fischer, S., see A. Huck.*  
 Fischer, W., and N. Steinbach, 670, 962, 1508.  
 Fischler, J., 808.  
 Fish, 2782, 2783.  
 Fish, C., 799, 1076.  
 Fish, P., 2781.  
 Fishburn, V., and O. Weber, 34.  
 Fishel, H., 2705, 2711.  
 Fischeo, C., 2511.  
 Fisher, A., 1620.  
 Fisher, E., 2601.  
 Fisher, E., and M. Cohn & Wollheim, 2601.  
 Fisher, J., J. Hall, and F. Moore, 1356.  
 Fiske, C., 2394.  
*Fison, F., see A. Harcourt.*  
 Fitch, 2854.  
 Fitch, E., & Co., 2891.  
 Fittica, F., 397.  
 Fittig, 393.  
*Fittig, R., see G. Bodlaender.*  
*Fittig, R., see B. Tollens.*

- Fittig, R., 2401, 2428, 2447.  
 Fittig, R., J. König, and H. Schäffer, 2429.  
 Fittinger, A., 2782.  
 Fitz, A., 419, 2439, 2473.  
 Fitzgerald, 1789.  
 Fitzgerald, J., *see* J. Wilkinson.  
 Fitz-Gerald, B., and B. Molloy, 724.  
 Fitz-Gerald, D., 1082, 1426.  
 Fitzgibbon, 2820, 2825.  
 Fitzsimmons, T., 2948.  
 Five, L., 2630.  
 Fiveash, Z., 2407.  
 Fiveash, Z., and C. Leonard, 2407.  
 Fizeau, H., 1014.  
 Flachs, A., 2561.  
 Flack, J., 657, 2063, 2064, 2065.  
 Flandin, *see* C. Combes.  
 Flaherty, E., 2446, 2492, 2505.  
 Flamand, *see* Hazard-Flamand.  
 Flameless Explosives Co., Ltd., 1704.  
 Flanagan, C., 1364.  
 Flaschar, 2743.  
 Flatau, T., and F. Schellhorn, 2736.  
 Flatters, A., 400, 3047, 3050.  
 Flavard, *see* R. Lepine.  
 Flavitzky, F., 2450, 2486, 2516.  
 Flechsig, *see* K. Weiske.  
 Flechsig, 148, 196, 202.  
 Flechsig, E., 127, 160.  
 Flechten, von, 2781.  
 Fleck, 1300, 2854, 2909.  
 Fleck, A., 2722, 2725.  
 Fleck, C., 2868, 2906.  
 Fleck, H., 278.  
 Fleischer, A., 2743.  
 Fleischer, A., and A. Kekule, 2513.  
 Fleischer, E., 1025.  
 Fleischer, J., *see* I. Pfeiffer.  
 Fleischer, J., 1306.  
 Fleischer, J., and H. Frank, 2418.  
 Fleischmann, C., 2473.  
 Fleitmann, T., 945, 1086.  
 Flek, E., 2588.  
 Fleming, *see* Frohling.  
 Fleming, J., *see* J. Dewar.  
 Fleming, J., 1075, 2700.  
 Fleming, J., and J. Dewar, 2457.  
 Fleming, J., and H. Froehling, 1023.  
 Fleming, N., and A. Thaysen, 513.  
 Flemming, C., 2743.  
 Flemming, H., 2388, 2591, 2757.  
 Flemming, W., 2559.  
 Fleschig, V., 326.  
 Fletcher, 1240, 1241.  
 Fletcher, A., 2710.  
 Fletcher, L., 1014.  
 Fletcher, W., 747.  
 Fleury-Hermages, 2825.  
 Fleury, A., *see* H. Cathelineau.  
 Fleury, E., 296.  
 Fleury, G., 39, 2451.  
 Flexer, A., 1871.  
 Flick, E., 430, 664.  
 Flight, W., 670.  
 Flint, E., and B. Tollens, 238.  
 Flint, J., 2786.  
 Flint, J., G. Bolton, and W. Mc-Lauchlan, 2513.  
 Flodquist, C., 27, 1300.  
 Floerscheim, *see* Chemische Fabrik Floersheim.  
 Flor, F., and E. Murman, 74.  
 Florence, 2837, 2869.  
 Florence Manufacturing Co., 2088, 2698, 2704.  
 Floren-Gunier, 2786.  
 Florent, M. de Saint, 2828.  
 Florentin, D., *see* M. Marquayrol.  
 Florentin, D., 806, 2753, 2923, 3020.  
 Floresco, N., *see* A. Dastre.  
 Flores-Domonte, F., and Menard, 1863.  
 Florin, J., 2305.  
 Florizoone, O., 2526.  
 Florman, A., 2781.  
 Flourens, 391.  
 Flourens, G., 480.  
 Floyd, E., 2600.  
 Flueckiger, F., 243, 393, 1014.  
 Flurscheim, B., 1829, 2964, 2552.  
 Fluri, M., and Runge, 64.  
 Flusin, 3074, 3082.  
 Flusin, G., 869.  
 Foch, G., 197.  
 Fodor, A., *see* E. Berl.  
 Föhr, 1320.  
 Foelsch & Co., F., 732.  
 Foerg, 183.  
 Forster, F., *see* J. Barbieri.  
 Förster, F., *see* V. Meyer.  
 Foerster, F., 670, 2758.  
 Foerster, F., and J. Blich, 670, 693, 695.  
 Foerster, F., and K. Gyr, 2325.  
 Foerster, F., and H. Jacoby, 925.  
 Foerster, F., and M. Koch, 670, 694, 704, 720, 900, 995, 1261.  
 Foerster, F., T. Burchardt, and E. Fricke, 1005.  
 Forster, F. v., *see* W. Wolf.  
 Förster, F. von, 2501.  
 Foerster, K., 2474.  
 Foerster, M. von, *see* W. Wolf.  
 Förster, M. v., 1625, 1633, 1794, 2164, 2251, 2944, 2971.  
 Förster, M. v., and W. Wolff, 2166.

- Foerster, O., 428, 726.  
 Förster, R., 2411, 2482.  
 Fogg, E., 2739.  
 Foissey, L., 459.  
 Fol, F., 429.  
 Foley, E., 296.  
 Folie, la, 1007.  
 Folien u. Flitterfabr., A. G., 2755.  
 Follet, P., and G. Ditzler, 79, 2630,  
 2635, 2636, 2647, 2649.  
 Foltzer, J., *see* T. Schmid.  
 Foltzer, J., 79, 561, 594, 2609, 2627,  
 2630, 2654.  
 Foltzer, J., and F. Scheys, 1872,  
 2649.  
 Foltzer, J., and J. Vermeesch, 90,  
 2649, 3065.  
 Foltzer, J., and E. Weiss, 2655.  
 Polyet, F., and T. Blanche, 710.  
 Fondelli, T., *see* C. Pozzie.  
 Fontaine, *see* Crepelle-Fontaine.  
 Fontaine, J., 2699.  
 Fontaine, P., 3065.  
 Fontainemoreau, P. de, 724, 2918  
 Fontayne, C., 2617, 2868.  
 Fonteln, F., 2465.  
 Fontenille, E., 1383.  
 Fonzes-Diacon, H., 1034.  
 Fooks, H., 2587, 2620.  
 Foote, H., *see* G. Higie.  
 Foote, H., 670, 806.  
 Forbes, 290.  
 Forbes, D., and J. Weymouth, 2599,  
 2698.  
 Forbes, G., *see* T. Richards.  
 Forbes, J., 1011.  
 Forbes, R., *see* H. Carpenter.  
 Force, J., 2740.  
 Force, W., M. Parenteau, and A.  
 Cutler, 2704.  
 Forch, C., 952, 1014.  
 Forcand, R. de, 2431, 2487.  
 Ford, A., 1625, 1632, 1857, 2586,  
 2597.  
 Ford, H., *see* P. Ford & Sons.  
 Ford, H., 1058, 1092.  
 Ford, J., 390, 468, 471.  
 Ford, J., and J. Guthrie, 439, 464,  
 472.  
 Ford, W., 1770.  
 Ford, W., J. Bruns, and L. Clark,  
 2412.  
 Ford P. & Sons, and H. Ford, 2678.  
 Fordos, M., and A. Gelis, 1014,  
 1058, 1571.  
 Fordred, J., 1766.  
 Forel, G., 2611.  
 Forest, P., 2647.  
 Foret, A., *see* V. Bondonneau.  
 Forgan, W., 2913.  
 Forge, *see* LaForge.  
 Forges de Firminy, *see* Soc. Anon.  
 des Acieries, etc.  
 Formhals, R., 2647.  
 Formstecher, F., 2857.  
 Forrest, 2837.  
 Forrest, C., *see* J. Wilson.  
 Forrest, C., and J. Meigs, 2599,  
 2608, 2615.  
 Forrest, H., *see* J. Darling.  
 Forrest, J., 2889.  
 Forrester, G., 307.  
 Forshaw, J., 296.  
 Forster, 2830.  
 Forster, A., 2584, 2643, 3053.  
 Forster, E., *see* V. Meyer.  
 Forster, F., 2692.  
 Forster, F., and G. Rockwood, 2906.  
 Forster, M., *see* H. Holmes.  
 Forster, M., 2521.  
 Forster, M., and H. Atwell, 2535.  
 Forster, O., 735.  
 Forster, P., 1095.  
 Forster, R., 1375, 1385.  
 Forster, T., 2574, 2611, 2661, 2739.  
 Fort, M., 503.  
 Fort, M., and F. Pickles, 119.  
 Fortey, C., *see* S. Young.  
 Fortey, E., *see* A. Richardson.  
 Fortey, E., *see* S. Young.  
 Fortier, 2684, 2901.  
 Fortier and David, 2658, 2888.  
 Fortier, G., 1063, 2598.  
 Fortier, M., 2749.  
 Fortis, A., 725.  
 Fortmann, 1100.  
 Fortun, R., and E. Semprun, 1698,  
 1766, 1888.  
 Fortuna-Werke, A. Hirth, 2978,  
 Foss, *see* L. Wohler.  
 Foss, A., 703, 847, 848.  
 Fosse, H., 307.  
 Fosse, R., 2771.  
 Foster, *see* Ellis-Foster Co.  
 Foster, A., 307, 1219, 1222, 1283,  
 2425.  
 Foster, F., 2564.  
 Foster, N., *see* E. Ellis.  
 Foth, G., 205, 212, 307, 460, 2421.  
 Fothergill, T., 2798, 2829, 2831, 2832,  
 2835.  
 Fouard, E., 401, 431, 432, 440, 483.  
 Fouard, E., and S. Bigelow, 2785.  
 Fouard, E., and A. Reyckler, 474.  
 Foucar, J., *see* C. Davis.  
 Foucaut, 2852.  
 Fouchard, L., *see* L. Belhisy.  
 Fouchard, L., *see* E. Vignes.



- Fouche, L., 1011.  
 Fougierol, E., 2630.  
 Foulis, J., 452.  
 Foulon, H. v., 1014.  
*Four, J., see J. Cottin.*  
 Fourcroy, 2.  
 Fourcroy, A., 670.  
 Fourcroy, A., and Vauquelin, 194.  
 Fourcroy, A., and L. Vauquelin, 1058.  
 Fournaud, J., 2555.  
 Fournieu, E., and M. Tiffeneau, 2402.  
*Fourneaux, E., see Calico Printers Association.*  
*Fournier, see A. Deiss.*  
 Fournier, Prescay and Begin, 2743.  
*Fournier, C., see A. Deiss.*  
*Fournier, G., see Société Commerciale.*  
 Fournier, H., 2445, 2487.  
 Fournier, R., 2579.  
 Fourtier, 2798, 2840.  
 Fourtier, H., 2804, 2806.  
 Fourtier, M., 2827.  
 Fourtoer, H., 1694.  
 Fovargue, Miss Nina, X, 3253.  
 Fowler, 1500, 1501, 1504, 2834.  
 Fowler, C., and E. Medley, 1273.  
 Fowler, E., 1073.  
*Fowler, G., see H. Auden.*  
 Fowler, G., 670.  
 Fowler, H., 2859, 2860, 2862.  
 Fowler, J., 1010, 2684.  
 Fowler, R., 1499, 2851, 2854, 2868.  
 Fownes, 670.  
 Fownes, G., 238.  
*Fox, see Lane-Fox.*  
 Fox, 677.  
*Fox, A., see G. Arnold.*  
*Fox, A., see L. Wooldridge.*  
*Fox, E., see W. Cohoe.*  
 Fox, E., 296.  
 Fox, H., 2611, 2618, 2707.  
*Fox, J., see J. Dobbie.*  
 Fox, J., 1058, 2826, 2842, 2847.  
 Fox, P., 670, 898, 900, 939.  
 Fox, T., and W. Meyers, 2030.  
 Fox, W., W. Hickey, and Kinema-colour Co., 2882.  
 Foxlee, E., 2750, 2815, 2816, 2825, 2864, 2866, 2868, 2901.  
 Fraass, A., 338.  
 Frabetti, G., 916.  
 Frabot, C., 2555.  
 Frachebourg, J., 2883.  
 Fraenkel, A., and P. Friedlaender, 221, 222.  
*Fraenkel, W., see G. Bredig.*  
 Fraenkel, W., 670, 924, 934.  
 Fraenkel, W., and P. Askenasy, 934.  
 Fraenkel, W., P. Askenasy, and J., Silbermann, 670.  
 Frajas, H., and A. Jaboin, 2640.  
*Framery, H., see L. Pacaud.*  
 Framery, H., and L. Pacaud, 2736.  
 Framm, F., 2404.  
 Frampton, A., 2601.  
*Francaise du Celluloid, see Cie Franc. du Celluloid.*  
*France, J., see F. Colburn.*  
 France, J., 562, 622, 1637, 2008, 2009, 2012, 2023, 2130, 2512, 2667, 2672, 2675, 2678, 2684, 2686, 2692, 2705, 2706, 2707, 2712, 2714, 2721, 2722, 2729, 2745, 2859, 2880, 2898, 2944, 2977.  
 Franceschi, G., 2411.  
 Francesconi, L., and A. Milesi, 2500.  
 Francesconi, L., and N. Sciacca, 716, 717.  
 Franchimont, 413, 613.  
 Franchimont, A., 1, 159, 166, 182, 184, 325, 2987.  
 Franchimont, A., and T. Zincke, 2453.  
 Francis and Smith, 437.  
 Francis, C., and O. Smith, 445.  
*Francis, E., see C. Grubbs.*  
 Francis, J., 2600.  
 Francke, 2584.  
 Francke, D., 268.  
 Francke, K., 825.  
 Francois, 2786.  
 Frank, 2963.  
*Frank, A., see G. Erlwein.*  
 Frank, A., 279, 290, 307, 669, 670, 685, 925, 934, 937, 1022, 2957.  
 Frank, A., and N. Caro, 689, 896, 917, 925, 926, 927, 934, 943.  
 Frank, A., and E. Lehmann, 307.  
 Frank, B., 459.  
 Frank, B., and F. Krüger, 459.  
 Frank, B., and Sorauer, 459.  
 Frank, D., 290.  
*Frank, E., see Chem. Fabr. Grunau.*  
*Frank, H., see J. Flenscher.*  
*Frank, J., see Enecke & Fischer.*  
*Frank, L., see G. Fendler.*  
 Frank, M., 2904, 2918.  
 Frank, N., 2643.  
 Frank, O., 685, 689.  
 Frank, O., and O. Fincke, 686, 925.  
 Frank, R., 1131.  
 Frank, W., 2641.  
*Frank, see F. Kuster.*  
 Franke, 1787.  
 Franke, A., 2401.  
 Franke, A., and M. Kohn, 2401.

- Franke, E., 934.  
*Franke, R., see E. Günther.*  
*Frankel, E., see M. Mendelsohn.*  
*Frankel, W., see C. Bredig.*  
 Frankenburg, I., and C. Weber, 170,  
 • 2617.  
*Frankenburg, Ltd., see C. Weber.*  
 Frankenburg, I., 2617.  
 Frankenheim, M., 1074.  
 Frankenstein, v., 1588.  
*Frankfort, see E. Schulze.*  
 Frankforter, G., 206, 2407, 2571.  
 Frankforter, G., and L. Cohen, 1747.  
 Frankforter, G., and F. Frary, 2520.  
 Frankfurter Maschinenbau, Aktien,  
 Gesellschaft, 1392.  
 Frankhausen, I., 415.  
 Frankhauser, J., 477.  
 Frank-Kamentzky, A., 2417.  
 Frankland, 1601, 2916.  
*Frankland, E., see H. Armstrong.*  
 Frankland, E., and B. Düppa, 2429,  
 2448.  
 Frankland, P., 670, 689.  
 Frankland, P., and R. Farmer, 717,  
 719, 720.  
 Frankland, P., and F. Garner, 3036.  
 Frankland, P., and T. Price, 2457.  
 Franklin, 670.  
 Franklin, E., and C. Kraus, 2433.  
 Franklin, J., 2789.  
 Franklin Tarsulat, 2869.  
 Franquet, E., 2553.  
 Franquet, H., 2542, 2754.  
*Frans, see Lehmann.*  
 Franz, 2822.  
*\*Franz, A., see O. Ruff.*  
*Frons, B., see K. Zulkowsky.*  
 Franz, O., and Deutsche Steinzeug-  
 waarenfabrik, 1271.  
 Franzen, H., and E. Lohman, 736.  
 Fraps, G., 238, 2405.  
*Frary, F., see G. Frankforter.*  
 Frary, F., and A. Dennis, 425, 428.  
 Frary, F., and G. Woollett, 2913.  
 Frasch, H., 449, 985, 989, 1023, 1092,  
 1088, 1119.  
*Fraser, see Douglas-Fraser.*  
 Fraser, 292.  
 Frass, A., 2662.  
 Frauenberger, J., 2718, 2720. •  
 Frazier, E., 1033.  
 Frazier, S., 1232, 1446.  
 Frechette, I., 2715.  
 Frederick, L., 703.  
*Frederick, L., see Canadian Westing-*  
*house Co.* •  
 Frederick, L., 2771.  
*Frederick, M., see Will & Finch Co.*
- Frederking, H., 3058.  
 Fredman, L., and R. Donaldson,  
 2952.  
 Fredureau, J., and H. de Chavannes,  
 1617, 2083.  
 Freeborn, G., 2781.  
 Freedon, R., v., 2246.  
*Freeland, W., see N. Heins.*  
 Freeland, W., and C. Renwick, 1062,  
 1192, 1298.  
 Freely, E., 2602.  
 Freeman, H., 670, 926.  
 Freeman, J., 2474, 2591.  
 Freeman, W., 296, 307, 335.  
 Freemantle, R., 79.  
 Freeport Sulphur Co., 1023.  
 Freer, P., and G. Highley, 717, 953.  
 Freerichs, R., 2643.  
 Freestone, J., and J. Humphris,  
 1014.  
 Freeth, 670.  
 Freeth, F., 803, 934, 1303.  
 Freeth, F., and H. Cocksedge, 934.  
 Freiburger, M., 536, 580, 670, 3065.  
 Freiburger, M., 547.  
 Freidrich, H., 1387.  
 Fremery, 79.  
 Fremery and Urban, 75, 85.  
*Fremery, M., see F. Bronnert.*  
 Fremery, M., and E. Bronnert, 92.  
 Fremery, M., E. Bronnert, and J.  
 • Urban, 92.  
 Fremery, M., and J. Urban, 2630,  
 2649.  
 Fremy, 1899.  
 Fremy and Urbain, 242, 243.  
 Fremy-Kraut, 2537.  
 Fremy, E., 1, 8, 196, 242, 710, 716,  
 725, 1014, 1058.  
 Fremy, E., and Terreil, 1, 196, 242.  
 Fremy, E., and Urbain, 196.  
 Fremy, E., and A. Urbain, 225.  
 Fremy, E., and V. Urbain, 234, 568.  
*French, A., see J. Wilson.*  
 French, A., 803, 1299.  
 French, E., 2993, 2994.  
 French, G., 2731. •  
 French, H., 2562.  
 French, T., 227.  
 French Agricultural Society, 1033.  
*French, F. & S., Ltd., see Anglo-*  
*French, F. & S., Ltd.*  
 Frenkel, I., 2649.  
 Frenkel, J., 2625.  
 Frentzel, J., 2452.  
 Frenzel, 2917.  
 Frere, J., 670, 934.  
 Frenes, O., 2679.  
 Frerichs, 112.

- Frerichs, F., 946, 2395.  
 Fresenius, 413.  
 Fresenius, H., 1056.  
 Fresenius, H., and P. Beck, 1038.  
 Fresenius, P., 1620.  
 Fresenius, R., 408, 1014.  
 Fresenius, W., 2478, 2479.  
 Fresenaye, P. la, 2395.  
 Fretard, G., *see* F. Botrelle.  
 Fretard, G., 2671, 2700, 2766.  
 Freuchen, P., and V. Poulsen, 1014.  
 Freud, J., *see* M. Stein.  
 Freudenberg, K., 2398.  
 Freund, 1619.  
 Freund, A., 2439, 2473, 2802, 2854, 2859.  
 Freund, M., and F. Lenze, 2456.  
 Freund, S., *see* H. Goldschmidt.  
 Freundler, P., 2436.  
 Freundler, P., and E. Damond, 2464.  
 Freundlich, H., 66.  
 Freundlich, H., and G. Losev, 66.  
 Frew, 2854.  
 Frey, H., 1296, 2570.  
 Frey, M., 2822.  
 Freyer, F., and H. Mueller, 2421.  
 Freymuth, W., 2592, 2647.  
 Freytag, M., 1086, 1094.  
 Freytag, W., *see* H. Beckurts.  
 Freson, *see* Isari.  
 Frick, R., 1738, 2275.  
 Fricke, E., *see* F. Foerster.  
 Fricke, E., 735, 1094.  
 Fricker, B., 458.  
 Friderich, L., *see* P. Guye.  
 Friderich, L., *see* E. Mallet.  
 Friderich, L., 704, 997.  
 Fridori, E., *see* E. Briner.  
 Friedberger, O., *see* E. Müller.  
 Friedburg, L., 717, 1058, 2771.  
 Friedel, A., 2448.  
 Friedel, C., *see* E. Linnemann.  
 Friedel, C., 1014, 2448, 2504.  
 Friedel, C., and A. Combes, 2521.  
 Friedel, C., and J. Crafts, 2448, 2486.  
 Friedel, C., and R. Silva, 2430.  
 Friedel, J., 2637, 2639.  
 Friedenthal, 413.  
 Friedenthal, H., 390, 391, 409, 410.  
 Friederich, 1860.  
 Friederich, L., 982.  
 Friederichs, O. v., 477.  
 Friederichsfeld Ceramic Works, 1271.  
 Friedheim, C., 712.  
 Friedheim, C., and O. Nydegger, 1051, 1828.  
 Friedl, A., and C. Weizmann, 2531.  
 Friedl, A., C. Weizmann, and The Clavton Aniline Co., 2512, 2523.  
 Friedländer, 1014.  
 Friedländer, A., 1303.  
 Friedländer, G., 1137.  
 Friedlander, M., 2434, 2613.  
 Friedländer, M., and P. Tuebben, 2578, 2623.  
 Friedlaender, P., *see* A. Fraenkel.  
 Friedlein, 2864.  
 Friedly, M., 2707.  
 Friedmann, 2782.  
 Friedmann, E., *see* W. Brasch.  
 Friedmann, E., *see* E. Opfermann.  
 Friedmann, E., 3055, 3056.  
 Friedmann, E., and Aktien Gesellschaft für Papier Fabrikation, 2624.  
 Friedmann, E., and G. Bonwitt, 3017.  
 Friedrich, *see* Sommer.  
 Friedrich, E., 72, 225, 2631, 2633.  
 Friedrich, F., 87, 2640, 2649.  
 Friedrich, H., 1356.  
 Friedrich, K., 1034.  
 Friedrich, M., 3065.  
 Friedrich, P., 77, 83, 87, 2630, 2631, 2649, 2652, 2655.  
 Friedrich-Greiner, 965.  
 Friedrich & Co., and F. Hirsch, 1099.  
 Fries, E., *see* L. Carius.  
 Friese, G., 1086.  
 Friese-Greene, W., 2891.  
 Friesse, P., *see* J. Decker.  
 Frings, M., 227, 3065.  
 Frischer, H., 813, 1003, 1004, 2558.  
 Fritsch, H., 2684, 2691, 2722.  
 Fritsch, T., 95, 1888.  
 Fritsche, J., 389.  
 Fritsche, P., 1026.  
 Fritz, F., 2592, 2877, 2882, 2895, 2898, 2920, 3004.  
 Fritzsche, 413, 2472.  
 Fritzsche, C., 2739.  
 Fritzsche, F., 425.  
 Fritzsche, F. & Co., 2525, 2531, 2599.  
 Fritzsche, H., *see* A. Michle.  
 Fritzsche, J., 408, 475, 716, 717, 1014.  
 Fritzsche, P., 1031.  
 Fritzweiler, H., B. Stuer and Chem. Fabr. Rhenania, 1119.  
 Froberg, O., 455.  
 Froedman, F., 2888.  
 Froedman, H., 2575.  
 Fröhlich, O., 713.  
 Froehling, H., *see* J. Fleming.  
 Froger-Delapierre, E., *see* E. Granier.  
 Froberg, 296.  
 Froberg, A., 209.  
 Frohling Fleming, and Whitlock 1025.  
 Frohwein, S., 2627.  
 Froid, E., 1375.

- Froideville, L. de, 1823, 2967, 2980.  
 Fromberg, I, 242.  
 Fromberg, P., *see* E. von Baumhauer.  
 Froment, J. de, 2584.  
 Fromherz, K., *see* O. Nebauer.  
 Fromherz, K., 2524.  
 • Fromm, E., 2524.  
 Fromme, 2782.  
 Fromont, G., 1209.  
 Fromont, L., 1210, 1212, 1246.  
 Frost, E., *see* R. Peterson.  
 Frost, J., *see* F. Greening.  
 Frost, L., 2999.  
 Frost, W., 2785.  
 Frothingham, D., 2608.  
 Frothingham, D., and R. Sawyer, 3048.  
 Fry, 2813, 2819, 2837.  
 Fry, S., 2750, 2797, 2826, 2895.  
 Frydlander, J., 2658, 2771.  
 Frye, G., 2760.  
 Fryer, 1241.  
 Fucherer, H., 2462.  
 Fuchs, 1537.  
 Fuchs, A., 2643, 3049.  
 Fuchs, F., *see* H. Buchner.  
 Fuchs, F., 1058, 2501.  
 Fuchs, G., *see* E. Beckmann.  
 Fuchs, K., 2771, 2977.  
 Fuchs, T., 1014.  
 Fuchs, W., *see* M. Hönig.  
 Fueisting, 328.  
 Fuerst Brothers, 2818.  
 Fürstenau, C., 1329.  
 Fürst Guido Donnersmarck'sche Kunstseiden und Acetatwerke, 2630, 2637, 2640, 2643, 3017, 3052, 3053, 3055, 3059.  
 Fuerth, 325.  
 Fürth, O. and E. Scholl, 1882.  
 Fujiyama, T., 724, 928.  
 • Fukiai Camphor Refining Company, 2512.  
 Fulda, W., 1244, 1283, 1287.  
 Full, G., 453.  
 Fuller, J., 269, 2729.  
 Fuller, L., 2730, 2731.  
 Fuller, W., 724, 2905.  
 Fullerton, H., 2725.  
 Fulmer, H., 670, 847.  
 Fulton, C., 1032.  
 Fulton, M., 2421.  
 Fulton, O., 2898.  
 Fulton, O., and W. Gillard, 2859, 2862, 2864, 2908, 2918.  
 Fumet, *see* Soc. Mennier.  
 Furfak, P., 958.  
 Furber, *see* Davis.  
 Furcht, M., *see* R. Wegscheider.  
 Furman, F., 2685.  
 Furman, J., 2677, 2712, 2729.  
 Furness, R., and W. Perkins, 2521.  
 Furness, W., 1426, 2042.  
 Furse, A., 2578.  
 Fusina, 1071.  
 Fusina, G., 1075.  
 Fussell, G., 2002.  
 Fyfe, 292, 2852.  
 Gabbey, W., 2728.  
 Gabek, L., and A. Stutzer, 2479.  
 Gabinierre, C. de la, and E. Diligeon, 2395.  
 Gabriel, *see* G. Bertrand.  
 Gad, E., 1919.  
 Gadamer, J., 2462.  
 Gadd, C., 226.  
 Gaden, H., 1313.  
 Gadowsky, A., 2654.  
 Gaebels, F., 2643.  
 Gaeddicke, 100, 2826, 2854.  
 Gaeddicke, J., 2857.  
 Gaens, F., 1637, 1783, 2501, 2964.  
 Gärtner, F., 226.  
 Gärtner, S., 2543.  
 Gagdeois, A., 296.  
 Gage, 2779, 2781, 2783, 2804, 2814.  
 Gage and Myers, 2782.  
 Gage, F., 2835, 2866.  
 Gage, S., 2782.  
 Gagel, *see* Soc. Vuagnal.  
 Gagel, *see* Vuagnal & Gagel.  
 Gahl, W., *see* W. Bilz.  
 Gaidukov, N., 51, 61.  
 Gater, J., *see* O. Clar.  
 Gaiffe, 1766.  
 Gaillard, 779, 1175, 1351, 1364, 1366, 1373, 1374, 1375, 1376, 1383, 1394, 1395, 1398, 1399, 1480, 2237, 2901.  
 Gaillard and Davanne, 2822.  
 Gaillard, A., 1073, 1236, 1291, 1372.  
 Gaillard, C., 2822.  
 Gaillard, D., 898.  
 Gaillard, P., *see* A. Davanne.  
 Gaillard, P., 1591, 2826, 2832.  
 Gaine, 99.  
 Gaines, R., 716.  
 Gaisenband, B., and Casimir-Stanislas Piestrak, 3014, 3045.  
 Gaisset, J., *see* L. Chypat.  
 Gal, J., 1014.  
 Galaine, C., and H. Hulbert, 1009.  
 Galand, C., 2980.  
 Galay, B., *see* J. Galay.  
 Galay, J., 2894.  
 Galay, J., and B., 2406, 2584, 2586, 2616, 2692, 2863, 2918, 2919.  
 Galbert, E., 79.

- Gale, H., 725.  
 Gale, L., and I. Galtmann, 2993.  
 Gale, W., and W. Boyden, 2603, 2604.  
 Galibert, A., 2654.  
 Galitzenstein, E., 2907.  
 Galitzine, B., 2499, 2501, 2504, 2505, 2506, 2507, 2508.  
 Galizische Karpathen Petroleum Aktien Gesellschaft vorm. Bergheim, Garvey & Gellen, 1358.  
 Gall, H., 2586.  
 Gallagher, F., 209.  
 Gallagher, F., and H. Mork, 209.  
 Gallagher, F., and I. Pearl, 206, 212.  
 Gallarder, O., and E. Prytz, 701, 930.  
 Galle, C., 2695.  
 Gallemacerts, 2784.  
 Galletly, J., 1382.  
 Galley, M., 2703.  
 Gallison, E., 2708, 2709.  
 Galloix, C., 2511.  
 Gallopin, J., 3075.  
 Galloway and Cowan, 2832.  
 Gallup, O., 2716.  
 Galt, H., 807.  
 Galy, G., 1790, 2755.  
 Gamble, J., 1010.  
 Gamble, W., 2747, 2906.  
 Gambs, J., *see* R. Berthon.  
 Gamet, V., 2569.  
 Gamgee, S., 2786.  
 Gandarilla, 726.  
 Ganghofer, A., *see* C. Paal.  
 Gans, L., *see* Pharmaceutische.  
 Gans, L., 2516.  
 Gans, R., E. Stone, and B. Tollens, 278.  
 Gans, R., and B. Tollens, 238, 325.  
 Gansser, *see* Lepetit.  
 Gansser, A., 307.  
 Ganswindt, F., 2641.  
 Gantier, M., *see* P. Guye.  
 Gantter, F., 735.  
 Gaon, W. v., *see* J. Meyer.  
 Garbarini, G., 2482.  
 Garbin, E., *see* G. Gerard.  
 Garbin, E., 2756.  
 Garbin, E., and C. Gerard, 2755.  
 Garbin, E., C. and G. Gerard, 2756.  
 Garchey, L., 2882, 2906.  
 Garcon, J., 538, 539, 590, 2518, 2923, 2996.  
 Gardair, F., and T. Gladysz, 1306.  
 Gardiner, H., *see* Parosone Co.  
 Gardiner, R., 896, 1906A.  
 Gardner, Mason & J. Chapman, 2806.  
 Gardner, E., 1624.  
 Gardner, H., 2567, 3049.  
 Gardner, J., *see* J. Marsh.  
 Gardner, W., 3067, 3070.  
 Gardner, W., and T. Carter, 62.  
 Garfield, S., *see* K. Birkeland.  
 Garfinkle, N., 2610, 2620.  
 Gargano, N., 2712.  
 Gargano, N., and W. White, 2696.  
 Gariboldi, G., 2957.  
 Garjeanne, G., 2869.  
 Garland, W., *see* C. Tuckfield.  
 Garn, W. von, *see* J. Meyer.  
 Garner, F., *see* P. Frankland.  
 Garner, J., 1086.  
 Garner, J., and H. Clayton, 1086, 1087, 1099.  
 Garneri, 2886.  
 Garneri, C., 1313, 2795.  
 Garnett, P., 627, 632.  
 Garnier, *see* P. Pascal.  
 Garnier, C., *see* Societe C. Garnier and F. Voland.  
 Garnier, C., and P. Depouilly, 2611.  
 Garnier, E., and P. Vuillaume, 2631.  
 Garniere, E., 1594.  
 Garot, *see* Cap.  
 Garrett, C., 1096.  
 Garrett, H., and G. Holcroft, 1618, 2980.  
 Garrigou, F., *see* C. Fabre.  
 Garrison, W., *see* H. Abbott.  
 Garros, P., 238.  
 Garroway, W., 789, 811, 813, 814, 846, 986, 1087, 1299, 1303.  
 Garroway, W., and E. Riesenfeld, 1132.  
 Gartenmeister, R., 1722, 2433, 2442, 2486, 2497, 2499, 2501, 2502, 2504, 2505, 2506, 2507, 2508, 2509.  
 Gartrell, J., 2677, 2678, 2738.  
 Garvey, *see* Bergheim.  
 Guryey, H., 2721.  
 Gasglühlicht, A. G., *see* Deutsche Gasglühlicht.  
 Gasiorowski, K., *see* V. Mers.  
 Gaskell, E., 2728.  
 Gasser, A., 1308.  
 Gasser, H., 2421, 2563.  
 Gassier, 2786.  
 Gassmann, C., and Soc. Chim. des Usines du Rhône, 2457.  
 Gassner, H., 226, 231.  
 Castine, G., 442.  
 Gatehouse, 2816.  
 Gatehouse, J., 670, 2869.  
 Gatel, 2835.  
 Gates, C., 2466.  
 Gates, W., 2738.  
 Gathemann, E., 2555, 2977.  
 Gathmann, L., 2148.

- Gatin-Gruzewski, Z., 427, 484.  
*Galtmann, I., see L. Gale.*  
 Gatty, F., 1011.  
 Gaube, R., 2690.  
 Gaubert, P., 1035.  
 Gaud, F., 2434.  
*Gaudechon, H., see D. Berthelot.*  
 Gaudichaud, Boussingault and Payen, 4.  
*Gaudin, see Millon.*  
 Gaudin, 1361, 2799, 2801, 2806, 2812, 2814, 2815, 2819, 2885.  
 Gaudin, A., 1571, 1582, 1633, 1641, 2826, 2901.  
 Gaudin, M., 2798, 2805, 2812, 2814, 2816, 2817, 2818, 2819, 2821, 2825, 2826, 2836, 2839, 2866, 2886.  
*Gaudion, G., see P. Sabatier*  
 Gaudit, J., 2586  
 Gauc, E., and M. Webster, 2790  
 Gaul, G., 2754.  
 Gaultier, P., 2910  
 Gaultier de Claubry, 1305.  
 Gaume, 2825, 2832.  
 Gaumont, L., 2894  
 Gaunt, S., 449  
 Gaunt, R., 1329  
 Gautier, 1361  
 Gautier, A., 670.  
 Gautier, G., 2604  
 Gautier, H., 2678.  
 Gauthier, L., 2764  
 Gauthier Villars, 2825.  
 Gautrelet, L., 919.  
 Gautron, 452.  
 Gavard, A., and J. Thompson, 2710.  
 Gavelle, P., 1329.  
*Gaven, W., see W. Hoyt.*  
 Gavey, J., 1624  
 Gawalowski, A., 278, 307.  
 Gawlich, G., 2613, 2692, 3058  
*Gay, C., see H. Boissesselin.*  
 Gay, J., 710, 713  
 Gaylor, L., 2696.  
 Gay-Lussac, 2, 1008, 1009, 1205, 1214, 1216, 1217, 1220, 1222, 1225, 1232, 1233, 1236, 1238, 1239, 1244, 1247, 1249, 1261, 1262, 1263, 1264, 1265, 1266, 1267, 1271, 1274, 1270, 1277, 1279, 1281, 1282, 1283, 1284, 1286, 1287, 1288, 1290, 1291, 1298, 1304, 1305, 1360, 2315.  
 Gay-Lussac, L., 255, 710, 713, 714, 717.  
 Gay-Lussac, L., and Thenard, 1014.  
 Gayon, H., and E. Dubourg, 419, 480, 2431.  
 Gayon, U., 348.  
 Gayon, U., and G. Dupetit, 670, 2431.  
*Gaza, see A. Juckenack*  
 Gazagne, E., and R. Demuth, 209, 2421  
 Gazagne, E., and M. Pingris, 2421.  
 Gazel, C., 1235  
 Gazel, J., 1386.  
 Gé, G., 1843.  
 Geary, S., 1134  
 Gebauer, J., 78, 227, 2624, 2637, 2639, 2766.  
*Gebell, C., see H. Hamecher.*  
 Geber, 1007.  
*Gebr. von den Bosch, see Gocher-Oelmühle.*  
*Gebr. Franke, see O. Muller*  
*Gebrüder Heine, see Heine, Gebrüder.*  
*Geddes, J., see P. Waterlow.*  
 Geduld, R., 420.  
 Gee, C. and F., 2745.  
*Gee, F., see C. Gee*  
 Gee, W., 729  
 Geelmuyden, K., 670  
 Geer, W., 2571  
 Gefleken, G., 710.  
 Geffers, F., 2714  
 Gehlen, 389  
 Gehlen, A., 2469.  
*Gehre, F., see G. Schultz*  
 Gehre, F., 1871  
 Gehring, G., 2454.  
*Geib, J., see N. Heinz*  
*Geiger, O., see J. Goepfer*  
 Geigy & Co., J., 2771  
*Geinsperger, E., see Z. Skraup*  
*Geisenberger, E., see H. Cohn*  
*Geisenberger, E., see H. Colin*  
 Geisenberger, E., 695  
 Geisler, L., 2750, 2875.  
 Geiss, E., 2687.  
 Geissler, 454  
 Geisdorfer, J., 2550, 2764  
 Geisdorger, J., 2660.  
 Geitner, C., 1014, 1058.  
 Geka-Werke Offenbach Dr. Krebs, 2905, 2920  
*Gelder, see A. Van Gelder.*  
 Geldmacher, 2851  
 Geldmacher, F., 2854.  
 Gelinek, E., and W., 296  
*Gelinek, W., see E. Gelinek.*  
 Gélis, 1847, 1849  
*Gélis, A., see J. Fordos.*  
*Gélis, A., see M. Fördos.*  
 Gélis, A., 1014, 1571.  
*Gellen, see Berghelm.*  
 Gellen, A., 1307, 1392.  
 Geller, P., 2565.  
*Gelligan, E., see J. Bland.*  
*Gelmo, P., see W. Suida.*

- Gelstsharp, C.*, see *J. Gall*  
*Gelstsharp, G.*, see *W. Whitehead*.  
*Gemain, P.*, 2577.  
*Gemberling, A.*, see *S. Bigelow*.  
*Gemberling, A.*, 2785.  
*Gembicki, 2692*.  
*Gembicki, H.*, see *J. Gembicki*.  
*Gembicki, J.*, and *H.*, 2712  
*Gemensche Chemische Fabrik*, see  
*Grafflich von Landsberg-Velen*  
*Gemmell, G.*, see *J. Readmann*.  
*Gemmell, G.*, 296.  
*Gendreau, J.*, 2410.  
*Genequand, P.*, see *Putet*  
*General Artificial Silk Co*, 2631  
*General Chemical Co*, see *J. Herreshoff*.  
*General Chemical Co*, 670, 747, 852,  
 898, 946, 1005, 1107, 1191, 1192,  
 1198, 1235, 3002.  
*General Electric Co*, see *E. Dawson*  
*General Electric Co.*, see *E. McFarland*.  
*General Electric Co*, 1239, 1251,  
 1303, 1862, 2393, 2536, 2598, 2771,  
 3058.  
*Generale de Cromolithe*, see *Cie Generale de Cromolithe*.  
*Genge, R.*, see *L. Droulers*  
*Genieser, A.*, see *C. Willgerodt*  
*Gennari, G.*, see *G. Carrara*  
*Gennari, G.*, 2502.  
*Genthiner Kartonpapierfabrik, Gesell-*  
*schaft*, 2582, 2647.  
*Gentieu, G.*, 2125, 2144, 2145, 2254  
*Gentieu, G.*, and *R. Waddell*, 2254  
*Gentil, F.*, 2457.  
*Gentil, L.*, see *H. Malbot*  
*Gentles, W.*, see *D. McKechnie*  
*Getusch, C.*, 2771  
*Gentzel, N.*, 2587.  
*Gentzen, R.*, and *L. Roth*, 278  
*Gentzen, W.*, see *L. Roth*  
*Gentzen, W.*, and *L. Roth*, 137, 213  
*Genyresse, P.*, 2548  
*Genyresse, P.*, and *P. Faivre*, 2517.  
*Geoffray, 2798, 2810, 2813, 2885*  
*Geoffray, S.*, 2835, 2854  
*Geoffroy, E.*, 2564.  
*George A.*, see *A. Gettler*  
*George, C.*, 2747.  
*George, J.*, 2756.  
*Georgieski*, see *Leifberg*  
*Georgievics, v. G.*, 63, 66, 2627, 2652  
*Georgievics, von, G.*, and *L. Loewy*,  
 66.  
*Georgievics, von, G.*, and *C. Weber*,  
 66.  
*Georgiewski, N.*, see *N. Hesehus*.  
*Georgii, E.*, 2692.  
*Gerald*, see *D. Fitz-Gerald*.  
*Gerald*, see *B. Fitz-Gerald*.  
*Gerard, A.*, 2631.  
*Gerard, C.*, see *E. Garbin*.  
*Gerard, C.*, see *G. Gerard*.  
*Gerard, E.*, see *G. Gerard*.  
*Gerard, G.*, see *F. Garbin*.  
*Gerard, G.*, 2573, 2660, 2668.  
*Gerard, G.*, *E. Garbin* and *C. Gerard*, 2660, 2756.  
*Gerard, Garbin* and *Picardo*, 2756.  
*Gerard, G.*, and *E.*, 2756.  
*Gerard, M.*, 2617, 2624, 2647.  
*Gerber, C.*, 426, 427.  
*Gerber, N.*, 2464  
*Gerber, N.*, and *M. Craandijk*, 2480.  
*Gerber, V.*, 1006B.  
*Gerbers Co*, *Dr. N.*, 2462  
*Gerdes, H.*, 934  
*Gerdt & Strauch*, 1074.  
*Gerhard, C.*, 1817.  
*Gerhardt*, 1647  
*Gerhardt, C.*, 2  
*Gerhardt, F.*, 695, 705, 1005  
*Gerhardt, G.*, and *C. Chancel*, 2447.  
*Gerhardt, V.*, see *F. Beckmann*  
*Gerhart, C.*, and *A. Cahours*, 2470  
*Gerin, F.*, see *L. Vignon*.  
*Gerlach, 1523*  
*Gerlach, G.*, 1014, 1031  
*Gerlache, J.*, 78, 946  
*Gerland, B.*, 1058  
*Gerlich, A.*, 2860.  
*Gerlits*, see *H. Prinsen-Gerlits*  
*Germain, 330*  
*Germain, F.*, 2677  
*German, P.*, 1785, 1788, 1872, 2400,  
 2624, 2626, 2641, 2653, 2673, 2695.  
*Germain, S.*, 2676.  
*Germain-Saint, J.*, see *J. Saint-Germain*  
*Germani, F.*, 2715.  
*Germot, A.*, and *H. Fievet*, 1075,  
 1122  
*Gerner, H.*, 2601.  
*Gernez, D.*, 716, 718, 961, 1014  
*Gernhardt, V.*, see *F. Beckmann*  
*Geromanos, H.*, see *G. Rolfe*.  
*Geronmont & Co*, see *Goldenberg*  
*Gerson, G.*, 458.  
*Gerspacher, A.*, 2687.  
*Gerspacher, E.*, 2688, 2745  
*Gerstenberger, L.*, 705.  
*Gerstner, M.*, 1330.  
*Gervais, F.*, 2758.  
*Gervaise, E.*, 2600.  
*Gesell, H.*, 2771.  
*Gesell, J.*, and *F. Schlesinger*, 2772.

- Gesell, W., and J. Minor, 34.  
 Gesellschaft f. Chemische Industrie, 3004, 3005.  
 Gesellschaft fur Gelatinierungen, 2590  
 Gesellschaft f. Huberpressung, 2677, 2678.  
 Gesellschaft fur Linde's Eismaschinen, A. G., 686, 687.  
 Ges. f. Stickstoffdunger, 946  
 Ges. fur Verwertung Chemische Produkten, 2649  
 Gesellschaft Nobel, *see* *Nobel*  
 Geserich, A., 2544, 2962  
 Gesner, A., 2412.  
 Gessard, C., 417  
 Gessard, C., and J. Wolff, 417  
 Gessert, J., 949, 1286  
 Gessner, L., *see* *H. Ost*  
 Gestelmeyer, A., 670  
 Getchell, C., 1063  
 Gethan and Cambier, 2920  
 Gethmann, O., and N. Chlaren, 705  
 Getman, F., *see* *H. Jones*  
 Gettler, A., 2409  
 Gettler, A., and A. George, 2410  
 Getzner, Muller & Co., *see* *T. Schiefner*.  
 Geubel, H., 413  
 Geuns, C. von, 670  
 Geuther, A., 716, 717, 1058, 1100  
 Geuther, A., and A. Michaels, 716, 717  
 Gevaert, L., & Co., 2895  
 Gevaert-Naert, L., 2609, 3078, 3079.  
 Gewerkschaft Amelie, 801.  
 Gewerkschaft Messel, 10064, 1030.  
 Gewerkschaft Messel, Adolf Spiegel, und Paul Meltzer, 1080.  
 Gewerkschaft Pionier, 657  
 Gewerkschaft des Steinkohlenbergwerke Lothringen, 946  
 Gewerkschaft des Steinkohlenbergwerkes Lothringen, and M. Keltling, 1005  
 Geyer, A., 1090.  
 Geymet, 2825, 2906, 2907  
 Geymet, M., 2854, 2857, 2866, 2868, 2875  
 Gezow, 2794  
 Ghigliotti, 726  
 Ghira, A., 2386.  
 Ghosh, J., *see* *P. Ray*.  
 Giacomini, 2783, 2784  
 Gija, J., *see* *H. Berry*.  
 Gijz-Tenua, D., 296.  
 Giandonati, R., 2600.  
 Gianoli, G., 307.  
 Gibb, D., and W. Abb, 2705.  
 Gibb, T., *see* *J. Gall*  
 Gibb, W., *see* *D. Gibb*  
 Gibbins, W., 2742  
 Gibbon, E., 1090  
 Gibbons, W., *see* *H. Madden*  
 Gibbs, H., *see* *Selden Co*  
 Gibbs, H., 1095, 2408  
 Gibbs, W., 670  
 Gibbs & Co., The Kestner Evaporating Co., I. Hobshaw and J. Grigioni, 730  
 Gibson, H., 670  
 Gibson, J., *see* *J. Mackenzie*  
 Gibson, J., and The Buckley Brick and Tile Co., 1269  
 Gibson, T., 2678, 2738.  
 Gibson, W., 1742  
 Gibson, W., and L. Jacobs, 1741.  
 Gibson, W., and R. McCall, 1744, 1747, 1931  
 Gidden, W., *see* *H. Croxther*  
 Gidden, W., *see* *E. Hunt*  
 Giddon, W., 934  
 Gidley, C., 2704, 2707.  
 Gierisch, W., *see* *P. Waentig*  
 Giersbach, J., and A. Kessler, 721.  
 Giertsen, S., 920, 1006B, 2551  
 Giesecke, *see* *Scheller*  
 Giesler, H., 2642  
 Gieson, *see* *Van Gieson*.  
 Gieson, van, J., 2782  
 Gies, L., 2895  
 Gihon, 2809  
 Gilbert, 2851  
 Gilbert, C., 1004  
 Gilbert, J., *see* *J. Lawes*  
 Gilbody, W., and G. Spranklin, 2405.  
 Gilchrist, 1175, 1399  
 Gilchrist, P., *see* *F. Hacker*.  
 Gilchrist, P., 1072, 1243, 1271  
 Giles, W., and F. Norris, 209.  
 Giles, W., F. Roberts and A. Boake, 788  
 Giles, W., and A. Shearer, 1059, 1097, 1333.  
 Gill, *see* *Payen*.  
 Gill, A., 2397, 2446  
 Gill, A., and W., 2586.  
 Gill, F., *see* *F. Farrar*.  
 Gill, J., *see* *C. Loze*.  
 Gill, J., 2707, 2708  
 Gill, W., *see* *A. Gill*.  
 Gill, W., 2502.  
 Gillard, M., *see* *O. Fulton*  
 Gillard, W., and M. Heslam, 2750.  
 Gillebert and Dhercourt, 2786  
 Gillern, A. v., 2708.  
 Gilles, F., 1634, 1855, 1856  
 Gilles, W., *see* *Courtaulds, Ltd*



- Gillet, C., 2542, 2675, 2755.  
 Gillet & Co., 2025.  
 Gillet and Sons, 1931, 2625  
 Gillett, 2786.  
 Gilli, F., 227.  
 Gilliard, P. *Monnet et Cartier*, see  
     *also Societe Chimique des Usines du*  
     *Rhone*.  
 Gillieron, F., 618.  
 Gilmore, G., see W. Wood.  
 Gillmore, G., 2688  
 Gillot, T., 2617.  
 Gillsrath, L., 2685.  
 Gillum, J., 2716.  
 Gilm, v., H., 2447.  
 Gilmant, E., 2681.  
 Gilmore, G., 2688.  
 Gilmore, R., 2905  
 Gilmour, see Dunville & Co.  
 Gilmour and Dunville & Co., 3047.  
 Gilmour, J., 538.  
 Gilmour, R., 2395  
 Gilmour, R., and W. Dunville & Co.,  
     2499, 2584, 3029  
 Gilpin, 2896.  
 Gilpin, J., 2422, 2652.  
 Gilroy, R., see W. Pasmore  
 Gilson, C., see C. Malsch  
 Gilson, F., 2, 39, 243, 326.  
 Giltay and Anderson, 197  
 Gimonet, C., G. Firetard, and G.  
     Hermand, 1785.  
 Gin, G., 1109, 1303.  
 Ginies, L., see C. Senes  
 Ginsberg, A., see G. Wagner.  
 Gintl, 1877.  
 Gintl, W., 454, 1618, 1643, 1907  
 Giolitti, F., and M. Marantonio,  
     1055.  
 Giran, H., 1015, 1124, 1317  
 Girard, see Barreswil  
 Girard, 50, 113, 158, 1904, 2837, 2914  
 Girard and Bordas, 1762  
 Girard, A., see H. Ducomet  
 Girard, A., see A. Muentz  
 Girard, A., see J. Pabst.  
 Girard, A., 36, 40, 59, 60, 117, 119,  
     122, 130, 131, 132, 133, 134, 135,  
     137, 138, 140, 143, 145, 146, 147,  
     162, 163, 413, 460, 1618, 1711,  
     1848, 1849, 1904, 2957, 2987.  
 Girard, A., and H. Morin, 1047.  
 Girard, A., and J. Pabst, 1306  
 Girard, C., 2384.  
 Girard, C., and P. Iooss, 2544, 2923.  
 Girard, C., and A. Pabst, 718  
 Girard, C., and X. Roques, 2475.  
 Girard, J., see P. Prost.  
 Girard, J., 2517, 2912.  
 Girard, P., see Soc. F. Kullner and P.  
     Girard.  
 Girard, P., 28, 240, 288, 321, 562,  
     572, 2582, 2637, 2638, 2643, 2652,  
     3064.  
 Girard, P., and C. Buffard, 2631,  
     2645.  
 Girard, P., and J. Sonnery, 2631.  
 Giraud, V., see L. Aubert.  
 Gire, G., see C. Matignon.  
 Girod, 2817.  
 Girod, F., 1091, 1339, 1345, 1359,  
     1381.  
 Girod, F., and Graflich von Lands-  
     berg-Velen und Gemensche Chem-  
     ische Fabrik, Berg und Hutten-  
     werke, 1381.  
 Gironde, 2787.  
 Girzik, E., 2607, 3057.  
 Gilhens, J., see H. Creighton  
 Gitsham, J., 1081.  
 Giua, M., 2972.  
 Giuliani Brothers, 1006B.  
 Giuliani, G., 922, 1006B  
 Gladbach, M., 565.  
 Gladding, T., 1056.  
 Gladky, P., 1015  
 Gladstone, 218, 219  
 Gladstone, J., 2, 215, 216, 670, 718,  
     953, 1015, 1583, 1590, 1643, 1647,  
     2386, 2497.  
 Gladstone, J., and A. Tribe, 1059,  
     2451.  
 Gladysz, T., see F. Gardair.  
 Glaenzer, L., see H. Bauw.  
 Glaessner, A., see G. Pum.  
 Glaisher, 2912  
 Glanzfaden Actiengesellschaft, 73, 87,  
     657, 2631, 2654, 3073.  
 Glanzstoff Fabriken, see Vereinigte  
     Glanzstoff Fabriken.  
 Glasmann, M., 2479  
 Glaser, C., 1056, 2515, 2526, 2530,  
     2531.  
 Glaser, F., 2030, 2956, 2980.  
 Glaser, K., see A. Bauhegyi  
 Glaser, K., see H. Heydenhaus  
 Glaser, L., 849.  
 Glaser, R., 898  
 Glasgow, A., 1004  
 Glass, P., 2704.  
 Glassford, C., 2470.  
 Glanfield, J., see J. Nef  
 Glatz, A., 2601.  
 Glauber, 797.  
 Glazebrook, R., 3050.  
 Glendenning, T., see H. Brown.  
 Glendinning, N., and A. Edger, 1050.  
 Glen Falls Machine Works, 1064.

- Glenny, A., and G Walpole, 1773  
 Gloag, V., and J. Riley, 739, 773, 1174, 1376.  
 Glock, G., 803, 815, 817, 985, 2908  
 Gloss, S., 1015.  
 Glover, 1008, 1009, 1074, 1078, 1081, 1090, 1190, 1204, 1205, 1214, 1215, 1217, 1220, 1222, 1224, 1225, 1227, 1228, 1230, 1231, 1232, 1233, 1234, 1238, 1239, 1246, 1251, 1262, 1263, 1265, 1266, 1267, 1274, 1277, 1279, 1281, 1282, 1283, 1284, 1285, 1286, 1288, 1289, 1290, 1291, 1298, 1305, 1316, 1324, 1336, 1338, 1340, 1342, 1347, 1349, 1350, 1358, 1359, 1368, 1373, 1384, 1387, 1388, 1390  
 Glover, H., 1063, 1366  
 Glover, J., 1276, 1322, 2826, 2828, 2829, 2831, 2832  
 Glover, J., and J. Bold, 2901  
 Glover, W., *see* Courtaulds, Ltd  
 Glover, W., 657  
 Glover, W., and L. Wilson, 657, 3080  
 Gluecksmann, C., 2443  
 Gluecktner, G., 2760  
 Ghum, O., & Co., 567, 1725, 3064  
 Gluud, W., *see* F. Fischer  
 Gnehm, 2  
 Gnehm, 616  
 Gnehm and Kautler, 66  
 Gnehm and Roetheli, 66  
 Gnehm, R., 2386  
 Gniwasz, S., and A. Wallisz, 670  
 Gobert, 2837, 2907  
 Goble, T., 409  
 Gocher, Oehmuhle Gebr van den Bosch, 240, 1878, 2633, 2634, 2766, 3073  
 Gockel, H., 970  
 Godard, 2801, 2819, 2821  
 Godber, C., 801  
 Goddard, T., 2594, 2726  
 Goddefroy, W., 1625, 2011  
 Godeffroy, R., 277, 296  
 Godeffroy, L., 2413, 2455  
 Godfrey, C., *see* H. Warne  
 Godin, 1359.  
 Godinus, *see* Cooper.  
 Godlewski, 394.  
 Godwin, A., and F. Kiel, 927.  
 Godwin, H., and A. Hoffman, 2736  
 Goebel, F., 2470, 2511.  
 Goebel, H., 837.  
 Goebel, K., 398.  
 Goebel, W., 2954  
 Goedtler, C., 232  
 Goehring, C., 2713.  
 Goepper, J., and O. Geiger, 3081.  
 Goering, T., 2997.  
 Goerlich & Wichmann, 1015  
 Goring, J., 1005  
 Gorlt, J., 453  
 Goessmann, G., 296  
 Goetter, H., 2492, 2676  
 Goettig, C., 1795, 2433.  
 Goettler, W., *see* R. Koster  
 Goettsch, H., *see* L. Andrews.  
 Goetze, F., and Pfeiffer, 238.  
 Gohon and Chute, 2819  
 Goissedet, P., 107, 324  
 Golby, F., and H. Ahrlé, 2586, 2614.  
 Goldbeck, G., 456  
 Goldberg, A., 2453  
 Goldberg, A., and M. Zimmermann, 2444  
 Goldberg, E., 2916.  
 Goldberg, S., 2714  
 Goldenberg, B., 2730  
 Goldenberg, Geronmont & Co., 1114.  
 Goldenburg, G., 1011  
 Golding, *see* Bird-Golding  
 Goldman, G., 2603  
 Goldmann, 1027  
 Goldreich, S., C. McKerrow and Splinterless Antimist Glass Syndicate, 2684  
 Goldreich, S., and M. Stern & Co., 2602  
 Goldscheider, F., 2591  
 Goldschmidt, C., 2771  
 Goldschmidt, E., 279, 307  
 Goldschmidt, H., *see* J. Nageli  
 Goldschmidt, H., 2509.  
 Goldschmidt, H., and S. Freund, 2456  
 Goldschmidt, H., and R. Koreff, 2513  
 Goldschmidt, H., and A. Messerschmitt, 2497, 2498, 2499, 2502  
 Goldschmidt, H., and L. Schulhof, 2521  
 Goldschmidt, H., and R. Zurrer, 2513.  
 Goldschmidt, M., 3005  
 Goldschmidt, R., 946  
 Goldschmidt, R., and J. Hasek, 460.  
 Goldschmidt, T., 3000  
 Goldschmidt, V., 1015  
 Goldsmith, 2745, 3062.  
 Goldsmith, B., 2552, 2593, 2608, 2613, 2620, 2675, 2736, 2754, 2759, 2761, 2771.  
 Goldsmith, G., and A. Merrill, 2707.  
 Goldsmith, H., 2440, 2509.  
 Goldsmith, J., *see* British Enallite Co.  
 Goldsmith, J., *see* British Xylonite Co.  
 Goldsmith, J., 2519, 2528, 2532, 2543, 2757, 3048.  
 Goldsmith, J., and British Xylonite Co., 2533, 2536, 2543.

- Goldsmith, R., 2466.  
 Goldstein, K., 3058.  
 Goldstein, M., 1015, 2563.  
*Goldthwaite, A., see C. Tolhurst*  
 Golonya, E., 2766.  
 Goltz, v., 1638.  
 Golubew, P., 2525, 2534.  
 Gomess, A., 2595.  
*Gonnelli, F., see L. Marino.*  
*Gonon, C., see J. Achard*  
*Gonon, C., see Soc. Gen. des Films C. Gonon.*  
 Gontard, G., and F. Valentiner, 986  
 Gonzalcz, P., 725  
 Gooch, 980, 1038, 1039, 1040, 1054.  
 Gooch, F., 2457.  
 Gooch, F., and S. Kuzirian, 670, 962  
 Goode, J., 296  
*Goodell, A., see J. Battis*  
*Gooderham, J., see M. Boswell*  
*Goodfellow, H. G., see E. Davies*  
 Goodfellow, J., and F. Sabbaton, 1109.  
*Goodloe, M., see L. Dewey.*  
*Goodson, J., see H. Richmond*  
 Goodwin, 2889.  
 Goodwin, C., 798, 801  
 Goodwin, E., 225  
 Goodwin, H., 2889, 2890.  
 Goodwin, I., and E. Sterne, 2396  
*Goodwin, W., see L. Maquenne*  
 Goodwin, W., 2866, 2869.  
 Goodwin, W., and B. Tollens, 2771.  
 Goodyear, C., 2600  
 Goold (Balfour Guthrie Investment Co.), 898  
 Goold, Adams, and Greenwood, 670  
 Goold-Adams, H., J. Partington and E. Rideal, 892, 896  
 Goozman, J., 2597  
*Gopner, C., see G. Lunge*  
 Goppelsroeder, 413.  
 Goppelsroeder, F., 112, 164, 409  
 Gorbhoff, A., and A. Kessler, 2440  
 Gorbhoff, A., and B. Mitkevitch, 848.  
 Gordon, 2837  
 Gordon, A., and E. Spencer-Mason, 2740  
 Gordon, C., 454  
 Gordon, E., 2835  
 Gordon, F., 2789.  
 Gordon, H., 227.  
 Gordon, J., 1015.  
 Gordon, R., 2831, 2832, 2835, 2842.  
 Gordon, V., 710.  
 Gore, 281.  
 Gorham, J., 2550.  
 Goriainoff, A., 693.  
*Gorkow, R., see D. Meyer.*  
 Gorlich, P., 2586.  
*Gorlitz, see Schuchardt.*  
*Gorlitz, see F. Wilde.*  
 Gorman, 1131.  
 Gorman, W., 2690.  
*Gornitzka, A., see G. Gornitzka.*  
*Gornitzka, C., see G. Gornitzka.*  
 Gornitzka, G., and A., 2681, 2747.  
 Gornitzka, G., and C., 2721  
 Gorrand, G., 1899, 2624, 2627.  
 Gorsline, 1768.  
 Gorsline, C., 2785.  
*Gorsline, E., see J. Tingle.*  
 Gorup-Besanez, F., 425.  
 Gorz, A., 296.  
*Gosto, B., see A. Sclavo*  
*Gosling, F., see T. Tyrer*  
 Gossage, 1029, 1242, 1338, 1382  
 Gossage, W., 1010, 1011, 1088, 1203, 1219.  
 Gossling, W., 2534.  
*Gostling, M., see H. Fenton*  
 Gostling, M., 109, 657.  
 Gothard, v., 1341.  
 Gotthelf, A., 1335.  
 Gottig, C., 2967.  
*Gottman, A. de, see J. Rosenblum*  
 Gottlieb, 197  
 Gottlieb, E., 242, 254, 1073, 2418  
 Gottlieb, J., 475  
*Gottlieb, R., see J. Bruhl*  
 Gottschalk, A., 2568.  
*Gottschalk, B., see J. Beggaard*  
 Gottschalk, O., 2692.  
 Gottstein, A., 421.  
 Gottstein, I., 279, 296, 307  
*Goudet, C., see P. Guye*  
*Goudima, A., see A. Saposchnikof*  
*Gougard, J., see J. Jean.*  
 Gougenheim, 2809.  
 Gough, 2783, 2803, 2845.  
 Gough, J., 2826, 2837, 2840, 2841, 2847.  
*Goulborne, W., see E. Tutcur.*  
 Gould, C., 2576, 2612, 2907, 2916.  
 Gould, F., 2708  
 Goulding, E., and W. Dunstan, 245, 246, 327, 486, 489, 583.  
 Goulding, W., and J. Ostersetzer, 798.  
 Goulrier, 2658  
*Gourdin, A., see P. Gourdin*  
 Gourdin, P., and A., 2631.  
*Gouthiere & Co., see Ducancel.*  
 Gouthiere, H., et Cie, and P. Ducancel, 1031.  
 Gouy, L., 2405, 2443.  
 Govan, A., 933  
*Govers, F., see P. Austen.*  
*Govers, F., see F. Myrwald.*

- Govers, F., 2568, 2761  
 Govers, F., F. Maywald and E. Austen, 2568  
 Gow and St. Amande, 3049  
 Gowdy, R., 3023.  
 Goy, O., 296, 307.  
 Goy, S., *see* A. Stultzer  
 Goyrand, G., 2787  
 Graaff, W., & Co., 2561  
 Grabowski, C., 279, 1303  
 Grabowsky, N., and A. Saytzeff, 2439  
 Graby, A., 2881  
 Graebe, C., and H. Krafft, 255  
 Graebe, G., 2500  
 Graflich von Landsberg-Velen und Gemensche Chemische Fabrik, 1080, 1339  
 Graflich von Landsberg-Velen und Gemensche chem. Fabr. Berg & Huttenwerke, G. m. b. H., 1315  
 Grager, N., 1340  
 Graetz, B., 397, 2162  
 Graetz, L., 2454, 2499, 2502, 2504, 2505, 2506, 2507, 2508, 2509  
 Gratzel, A. von, 1303  
 Graf, A., 2696  
 Graf, G., *see* F. Schneider  
 Graf, H., *see* R. Berneck  
 Graf, H., *see* O. Ruoff  
 Graf, L., 2851, 2854  
 Graf Schwerin Ges., 27  
 Grafe, V., 264  
 Graff & Co., W., 1919  
 Graft, H., *see* A. Kuddkepp  
 Graft, J., 2739  
 Graftau, J., 2482  
 Graham, 100  
 Graham, C., 1271  
 Graham, E., *see* E. Strange  
 Graham, E., 2837.  
 Graham, J., 284, 838, 1010, 1011, 1218, 1223, 1230  
 Graham, T., 952  
 Grahmann, W., 934  
 Grallot, L., *see* H. Benoist  
 Gramont, *see* A. DeGramont  
 Grand, J., 2597  
 Grandage, G., 226, 3065  
 Grandage, H., R. Farnworth and A. Fielding, 3080  
 Grandeau, *see* Schlosing-Grandeau.  
 Grandjean, A., 296, 569  
 Grandmougin, E., *see* O. Michel  
 Grandmougin, E., 17, 119, 154, 224, 250, 264, 296.  
 Grandquist, 92.  
 Grandquist, C., *see* R. Strehlenert.  
 Grandquist, C., 2624, 2631.  
 Granel, C., 2766  
 Grange, la, B., 243  
 Grange, E. de la, 2613, 2624  
 Granger, A., 2600, 2706, 2707, 2877.  
 Granger, M., 2387  
 Granier, E., and E. Froger-Dela-  
 pierre, 2391, 2769.  
 Grant, D., 2925  
 Grant, J., 336  
 Grant, S., and A. Rutzebeck, 2952  
 Grantham, 292  
 Graphit, *see* Aflenz-Graphit.  
 Grasselli Chemical Co., *see* I. Lihne  
 Grasselli Chemical Co., 1107, 1192  
 Grasser, *see* Smith  
 Grasser, C., 2677  
 Grasser, G., 2678  
 Grasset, E., and S. Hassmann, 2681.  
 Grassi, G., 2154  
 Gratzel, A. v., 1122  
 Grau, A., and F. Russ, 670, 693, 695, 701, 704, 848  
 Grau, C., 2977  
 Gaul, F., 2713  
 Gaul, O., 2484  
 Graumann, *see* Stollberg  
 Graumann, G., *see* F. Doeltz  
 Gravelin, A., 2761.  
 Graves, A., 450  
 Graves, S., 2583, 2615.  
 Gravier, C., 2864  
 Grawitz, S., 2417.  
 Gray, A., 1076, 2556, 2687.  
 Gray, C., 2678, 2725  
 Gray, C., and E. Hagenlocher, 894.  
 Gray, G. le, 2797  
 Gray, G., and R., 2611  
 Gray, J., 2837  
 Gray, R., *see* G. Gray  
 Gray, R., 692, 712, 713, 715.  
 Gray, S., 2704  
 Gray, T., 713  
 Gray, W., *see* K. Orton  
 Graydon, J., 1635, 2977  
 Grayson, J., 1069  
 Greaves, *see* Stewart  
 Greaves, W., and E. Hann, 1789, 2952, 2957  
 Greding, W., 1074  
 Green, 187  
 Green and R. Levy, 115  
 Green and Perkin, 3020  
 Green, A., *see* C. Dreyfus  
 Green, A., 14, 18, 19, 20, 21, 24, 25, 42, 225, 2901  
 Green, A., and A. Perkin, 21, 2753, 2988, 2991.  
 Green, E., *see* J. Norris.  
 Green, E., 2954

- Green, H., 296, 1369.  
*Green, W., see W. Lewis.*  
*Green, W., see E. Thomson.*  
 Green, W., 1900, 2600, 2624, 2704.  
 Green, W., and Huncoat Plastic  
 Brick & Terra-Cotta Co., 1269,  
 1280.  
 Greenawalt, G., 1075.  
 Greenawalt, J., 1072.  
 Greenburg, M., 2726.  
*Greene, see W. Friese-Greene.*  
 Greene, B., 2900.  
*Greene, H., & Sons, see M. Schwab.*  
 Greene, S., 2711, 2741.  
*Greene, W., see J. LeBel.*  
*Greene, W., see E. Thomson.*  
 Greening, 1624.  
*Greening, F., see J. Frost.*  
*Greening, F., see W. Jack.*  
 Greening, F., 1874, 1892, 2025, 2385,  
 2610, 2611, 2692, 2706, 2719.  
 Greening, F., and J. Frost, 2675, 2719.  
 Greening, F., O. Peck and T. Potts,  
 2600, 2719.  
 Greenish, H., and H. Wilson, 2794.  
 Greenley, C., and J. Day, 2906.  
 Green Shields, T., 1011.  
 Greenstreet, C., 852, 927.  
*Greenwood, see Goold.*  
*Greenwood, H., see F. Haber.*  
 Greenwood, H., 898, 1006A.  
 Greenwood, H., and W. Tate, 898,  
 1006A.  
 Greenwood, J., 225.  
 Gregoire, A., 1348.  
 Gregoire, A., and E. Carpioux, 387.  
 Gregor, G., 368.  
 Gregorini, J., 2960.  
*Gregorio, see DeGregorio.*  
*Gregory, E., see P. Ward.*  
 Gregory, H., 2587, 2606.  
*Greiner, see Friedrich-Greiner.*  
 Greiss, G., 2977.  
 Grempe, P., 307.  
 Gren, 1015.  
 Grenet, F., and Salimbeni, 1772,  
 2785.  
 Grenier Art Co., 2861, 2904, 2908,  
 2919.  
 Grenville, W., 2727, 2728.  
*Grete, E., see T. Zoeller.*  
 Gretsche & Mayer, 2442, 2457, 2480.  
 Greulich, R., and H. Lickfett, 934.  
 Grice, A., 2660, 2717.  
 Gridkoff, 436.  
 Gridley, 1387.  
 Gridley, J., 1351, 1355, 1356, 1360,  
 1364, 1383, 1391.  
 Gridley and Chance, 1367.  
*Griebel, see A. Juckenack.*  
 Griepe, A., 694.  
 Grieshaber, M., 2749.  
 Griessmayer, V., 404, 408, 441.  
*Griffet, see Taurel.*  
*Griffin, C., see W. Whitney.*  
 Griffin, J., & Sons, Ltd., and J.  
 Thompson, 2919.  
 Griffin, L., 307.  
 Griffin, M., 296, 1088.  
 Griffith, 1639.  
 Griffith, R., 1811, 2975, 2986.  
 Griffith, R., E. Durnford and G.  
 Wadsworth, 2944.  
*Griffiths, E., see L. Gallender.*  
 Griffiths, G., 2835.  
 Griffiths, J., 2742.  
 Griffiths, W., 2835.  
 Grigham, W., 2685.  
*Grigioni, J., see Gibbs & Co.*  
*Grigioni, J., see I. Hobbsaw.*  
*Grignard, V., see P. Barbier.*  
*Grignard, V., see L. Tissier.*  
 Grignard, V., 2435, 2443.  
 Grignard, V., and L. Tissier, 2460.  
 Grignard, V., and L. Zorn, 2466.  
 Grignolo, F., 2411.  
*Grillo, see Schroeder-Grillo.*  
 Grillo, 1117, 1128, 1174, 1183, 1187,  
 1396, 1475, 1480, 2237.  
*Grillo, W., see Akt. Ges. fur Zinkin-*  
*dustrie.*  
*Grillo, W., see M. Schroeder.*  
 Grills, E., 2880, 2882.  
*Grim, H., see C. Schwalbe.*  
 Grimaldi, A., 239.  
 Grimaldi, C., 2535, 2570.  
 Grimaldi, C., and L. Prussia, 2570.  
 Grimaux, E., 70, 75.  
*Grimberg, see Grumer & Grimberg*  
*Ges.*  
 Grimbart, L., 670.  
 Grimes, H., 1624.  
 Grimm, F., 2450, 2473.  
 Grimm, F., 451, 1063, 1069.  
*Grimmer, W., see A. Scheunert.*  
 Grimmer, W., and A. Scheunert, 345.  
*Grimoin-Sanson, R., see J. Philipps.*  
 Grimoin-Sanson, R., 2736.  
 Grimshaw, H., and C. Schorlemmer,  
 2430.  
 Grimshaw, R., 955.  
*Grimson, see Societe Civile, etc.*  
*Grimberg, S., see F. Haber.*  
 Griner, G., 183.  
 Gripekovan & Co., 2601.  
 Gripon, 1624.  
 Gripon, E., 1769, 2913.  
 Gris, A., 390.

- Grist, C., 958, 2603, 2660.  
*Griswold, J.*, see *E. Barstow*.  
*Griswold, V.*, see *O. Evans*.  
*Griswold, V.*, 2813, 2827, 2861  
*Grob, W.*, see *E. Bosshard*.  
*Grob, W.*, see *Chem. Fabrik Rhenania*  
*Grobe, C.*, 2602.  
*Grodzki, M.*, and *G. Krämer*, 2398.  
*Groebe, F.*, see *W. Moldenhauer*.  
*Groeger, M.*, 1055.  
*Grognot, L.*, 2659, 2772, 3005  
*Grohmann, H.*, 670.  
*Grohslicht, T.*, 2761.  
*Grolea, J.*, and *J. Weyler*, 2537, 3036,  
 3049.  
*Groll, J.*, 439.  
*Grondal, G.*, 1075.  
*Gronningsæter, A.*, see *G. Haglund*  
*Groom, W.*, 2707.  
*Gros, F.*, 1005.  
*Gros, F.*, and *Bouchardy*, 670, 719,  
 721, 845, 898, 920, 934  
*Gros, F.*, and *P. Bourcart*, 226, 230  
*Gros, O.*, 2466, 2496  
*Grosbams, J.*, 2431  
*Gross and Bouchary*, 177  
*Gross, F.*, see *H. Becker*  
*Gross, F.*, 307  
*Gross, T.*, 1015  
*Grosse, M.*, 2601  
*Grosse-Leege, C.*, 1210, 1359, 1387  
*Grosser, G.*, 307.  
*Grosseteste*, 54  
*Grosseteste and A. Scheuer*, 44  
*Grossfeld, J.*, 455  
*Grossman, F.*, 2570  
*Grossman, I.*, 812  
*Grossman, J.*, 670, 798, 927, 1051  
*Grossmann Brothers*, 232.  
*Grosvenor, H.*, 2611.  
*Grosvenor, W.*, see *G. May*  
*Grosvenor, W.*, 1107, 2673.  
*Grote & Pinetta*, 2475  
*Grote, H.*, 2413, 2475  
*Grote, L.*, 99, 2624, 2655, 3007, 3043  
*Grote, L.*, and *A. Vivian*, 2766.  
*Groth, L.*, 2575.  
*Groth, P.*, 1015.  
*Grothe, H.*, 657, 1618  
*Grothe, O.*, 307  
*Grotte*, see *Neubauer*  
*Grotte, A.*, and *F. Kalous*, 2687.  
*Grotte, R.*, see *A. Neubauer*.  
*Groussilliers, H. de*, 1308, 2556.  
*Grouven, H.*, 1030.  
*Grove*, 670.  
*Grove, A.*, see *G. Grove*.  
*Grove, G.*, and *A.*, 2705, 2756.  
*Grove, W.*, see *M. Pellenkofer*.  
*Grove, W.*, 710, 713, 1577, 1578  
*Grover, F.*, see *G. Baxter*.  
*Groves*, 946  
*Groves, S.* see *British Aeroplane Var-*  
*nish*  
*Groves S.*, and *T. Ward*, 2579, 3047,  
 3048  
*Grubbs, C.*, and *E. Francis*, 2785  
*Grube, A.*, see *Leipziger Tanier Manier*.  
*Grube, G.*, and *J. Krueger*, 670, 933,  
 934  
*Grube, G.*, and *P. Nitsche*, 670, 934.  
*Gruber, D.*, see *F. Musculus*  
*Gruber, M.*, 670  
*Gruber, O.*, 1100, 1132  
*Grue, W.*, 2574  
*Gruehoff*, see *Rodet*  
*Gruel, C.*, 1585, 1586  
*Gruener & Grumberg Ges.*, 2560, 2562.  
*Grunau*, see *Chemische Fabrik Grunau*.  
*Gruenberg*, 1022  
*Grundlich, O.*, 1976  
*Grune*, 2833, 2901.  
*Grune, F.*, 2750, 2800, 2915  
*Grune, W.*, 215, 1619, 2827, 2866  
*Gruener, H.*, 1034.  
*Grunewald & Welsch*, 1073, 1081.  
*Grunewald, J.*, see *O. Moh*  
*Gruenhut, L.*, 238  
*Grunstein, N.*, see *P. Askenasy*  
*Grunstein, N.*, 2390, 2543, 2772, 2995,  
 2996  
*Grunwald, F.*, 2778  
*Gruß, J.*, 317, 390, 399, 412  
*Gruter, R.*, 2582, 2692  
*Grueter, F.*, 480  
*Gruhl, R.*, see *H. Stockhausen*.  
*Grummach, L.*, 710  
*Grundmann Bros.*, 2750.  
*Gruneberg*, see *Stassfurter, etc.*  
*Gruneberg*, see *Vorster*.  
*Gruneberg*, 1015  
*Gruneisen, E.*, see *L. Holborn*  
*Grunert, K.*, see *K. Schreiner*  
*Grunow*, 2412  
*Gruon, H.*, and *A. Hellhoff*, 1810.  
*Gruzevska*, see *Z. Galin-Gruzevska*.  
*Grynfeldt, J.*, 2788.  
*Guadagni, G.*, 87, 2631, 2653.  
*Guardia*, see *Newman & Guardia*.  
*Gubbins, R.*, and *C. Farquharson*,  
 2602.  
*Gubinol Ges.*, 3051.  
*Gubler*, 2793.  
*Gudeman, E.*, 452.  
*Gudman*, 2642  
*Guedras, M.*, 1056.  
*Gumbel, G.*, see *F. Jurgensen*.  
*Günthel, O.*, 2772.

- Günther, 2873  
 Guenther, A., and B. Tollens, 238.  
 Günther, C., 2638, 2652.  
 Günther, E., and R. Franke, 1031.  
 Gunther, F., 2778  
 Guenther, H., 2687  
 Günther, L., 459, 461  
 Gunther, R., 2713  
 Gunthner, H., 2678, 2688, 2690, 2700,  
 2709, 2712  
 Guenvin and Bonoldi, 2832  
 Guerard, 2787.  
 Guerbet, M., 2417, 2435, 2443, 2458,  
 2521.  
 Guerbet, M., and A. Behal, 2521.  
 Guerin, de, C. 2711  
*Guerin, E., see L. Vignon*  
*Guerin, G., see R. Lepine*  
 Guerin, G., 2406, 2462, 2463  
 Guerin-Varry, R., 389, 392  
 Guerout, A., 1059  
 Guerrounan, A., 2780  
 Guertler, 2750  
 Gurtler, F., 2454  
*Guest, H., see T. Johnson*  
 Guetler, H., 2974  
 Güttler, H., 2977  
 Guglielmo, G., 1015  
 Gui, E., 934  
 Guibort, 389.  
 Guichard, 413, 2795  
 Guichard, M., 409, 670, 847  
 Guichard, M., Vavon, Cornee, Can-  
 tagrel, Stevenson, Apard and Bour-  
 diol, 1006.  
 Guichard, P., 409  
 Guide, de, C., and David & Co., 814.  
*Guignard, G., see G. Periere*  
 Guignard, G., 1863, 2414.  
 Guignard, G., and A. Hedouin, 2414  
*Guignet, see Zenger.*  
 Guignet, C., 36, 82, 126, 128, 147,  
 148, 1015, 1636, 2916, 2987  
 Guignet, E., 1600, 1871, 1899.  
 Guiguet, L., 210, 572, 2025  
 Guilbaud, 2986  
 Guilbaud, M., 2369  
 Guilbet and Hertier, 2910  
 Guilford, T., 2694, 2720  
 Guilhard, 2789  
*Guilin, see M. Dumas-Gutlin*  
 Guillaume, E., 2417.  
*Guillaume, F., see F. Carmichael*  
*Guillaume, F., see J. Carmichael.*  
 Guillaume, F., 1224.  
*Guillaume-Lahmeyerwerke, see Felton.*  
 Guilleminot, 1623, 2859.  
 Guilleminot, R., and E. Boespflug,  
 2877.  
*Guillet, V. see E. Mauvillin.*  
 Guilleteau, L., 2607, 2609.  
 Guillois, L., 2600.  
 Guillot, J., 2606, 2607, 2609.  
*Guinard, C., see A. Baron.*  
 Guinchant, J., 2444.  
 Guisclin, A., 1096.  
 Guitteau, L., 1037.  
 Guittet, G., 2492, 2493.  
 Gulbrandsen, S., 2507.  
 Guldberg, C., 2405, 2433, 2442, 2456,  
 2497, 2498, 2499, 2500, 2502, 2504,  
 2505, 2506, 2508.  
 Guldberg, C., and P. Waage, 432,  
 2487.  
 Gulje, A., 2788.  
 Gulland, 2784.  
 Gulliver, 2819.  
 Gulliver, T., 2814.  
 Gumbel, 2282  
 Gummi (Foreign), Ltd., 2765  
 Gummi-u. Zellulose fabrik, 2668  
 Gumpel, W., 2649  
 Gumpert, F., 1100  
 Gundy, F., 2596  
*Gunesch, R. von, see F. Jurschina*  
*Günier, see Floren-Günter*  
 Gunn, G., 296  
 Gunnot, Fretard and Herward, 1781.  
 Gunsberg, R., 716, 718  
 Günsolus, F., 2928  
 Gunther, H., 2687, 2854, 2858, 2866,  
 2875, 2901, 2904, 2910, 2914  
*Gunther, P., see H. Kast*  
 Gunther, W., 307  
*Guntrum, H., see O. Bonhoeffer*  
 Guntz, 670, 934  
 Guntz, A., 718, 1059  
 Gurney, J., 2861  
 Gurtner, A., 2882  
 Gustavson, G., 1015, 1100  
 Gutbier, A., 736  
 Gutbier, A., and F. Engeroff, 1056.  
 Gutbier, A., and E. Weingaertner,  
 403.  
 Gutensohn, A., 1030  
 Guthrie, 1766.  
 Guthrie, F., 2471, 2491  
*Guthrie, J., see J. Ford*  
*Guthrie Investment Co., see Balfour-*  
*Guthrie Investment Co.*  
*Guthzeit, M., see M. Conrad.*  
 Gutnecht, H., 2473.  
 Guttman, see Abel.  
 Guttman, 826, 843, 1221, 1222, 2147,  
 2324, 2335, 2336, 2346, 2347.  
 Guttman, O., 570, 614, 671, 703, 750,  
 836, 841, 842, 984, 999, 1007, 1209,  
 1210, 1211, 1212, 1216, 1235, 1236,

- 1268, 1270, 1271, 1275, 1280, 1281,  
1369, 1391, 1427, 1440, 1462, 1463,  
1464, 1656, 1674, 1677, 1707, 1710,  
1719, 1734, 1754, 1761, 1766, 1767,  
1876, 1921, 1990, 2182, 2186, 2561,  
2922, 2925, 2952, 2957, 2977.  
Guttmann, O., and M. Abelli, 1440.  
Guttmann, O., and L. Rohrmann,  
843, 985.  
Gutzeit, 811, 1039, 1127  
Guye, A., *see* P. Naville.  
Guye, A., 2442.  
Guye, C., 696  
Guye, C., and A. Brom, 696  
Guye, C., and L. Sebrikoff, 696  
Guye, O., *see* A. Naville  
Guye, P., *see* J. Bolle  
Guye, P., *see* P. Naville  
Guye, P., *see* T. Renard  
Guye, P., *see* A. Wroczynski  
Guye, P., 671, 687, 691, 692, 693, 699,  
709, 715, 720, 848, 864, 900, 997,  
1004, 1005, 1015, 1059, 2433, 2460,  
2491, 2507  
Guye, P., and A. de Armal, 2457,  
2468, 2491, 2508  
Guye, P., and A. Baud, 2502  
Guye, P., and S. Bogdan, 671, 692,  
710  
Guye, P., and L. Chavanne, 2383,  
2457, 2491, 2508, 2509  
Guye, P., and G. Darier, 671  
Guye, P., and C. Davilla, 671, 715  
Guye, P., and G. Drougmine, 692  
Guye, P., and L. Friderich, 2405,  
2435, 2497, 2498, 2502  
Guye, P., and M. Gantier, 2509.  
Guye, P., and C. Goudet, 2388  
Guye, P., and A. Pintza, 671, 692,  
711.  
Guye, P., and B. Rossi, 2508, 2509.  
Guye, P., and F. Schneider, 671, 694.  
Guyon, *see* Curtis  
Guyot, A., 2997.  
Guyot, A., and A. Haller, 2772  
Guzzi, P., 2434.  
Gwynn, S., 98  
Gyr, K., *see* F. Foerster.  
Gyr, J., 2407.  
Gyzander, C., 1056  
  
Haack, C., 2832, 2854  
Haack, M., 2818  
Haack, R., 808  
Haackmann, 2825  
Haage, W., *see* E. Trainer.  
Haage, W., 307, 315.  
Haagen, E., 1261.  
Haake, A., and H., 429.  
  
Haake, H., *see* A. Haake  
Haakh, H., 3005  
Haakman, H., 2843  
Haaren, A. van, *see* E. Hene  
Haarman, *see* Luemann  
Haarman & Reimer, 2521  
Haarmann, W., *see* F. Tiemann  
Haarsma, M., 934  
Haarst, *see* J. Van Haarst  
Haarst, 2517  
Haas, *see* Rohm  
Haas, B., 296  
Haas, J., *see* C. Clemm  
Haas, J., *see* H. Manchot  
Haas, J., 1078  
Haas, P., 3005  
Haas, R., 791, 961  
Haas, de, *see* R. Tromp de Haas  
Haase, A., 2692  
Habel, D., 231, 2600  
Haber, 1136, 3063  
Haber, A., 2519  
Haber, F., 693, 671, 857, 900, 901,  
903, 911, 943, 945, 946, 1006,  
1006.1, 1015, 1022, 1024  
Haber, F., and F. Bran, 85  
Haber, F., Choates, Kakowetzky,  
Koenig, and Platon, 693  
Haber, F., and J. Coates, 901.  
Haber, F., and H. Greenwood, 671,  
901  
Haber, F., and S. Grinberg, 1133  
Haber, F., and A. Koenig, 671, 694,  
704, 858, 869, 878, 901.  
Haber, F., A. Koenig, E. Platon and  
W. Holweh, 901  
Haber, F., and R. LeRossignol, 671.  
Haber, F., and A. Maschke, 671, 901.  
Haber, F., and G. van Oordt, 901,  
945  
Haber, F., and S. Tamaru, 901.  
Haber, F., S. Tamaru and C. Pon-  
naz, 901  
Haber, L., 2563  
Haberlandt, 243  
Habermann, J., 390, 400, 1015, 1022,  
2441, 2501  
Habermann, J., and H. Brezina, 2502.  
Habersack, N., 2453  
Habrich, J., 454  
Hache, G., 2417  
Hackenberg, J., 2692, 2716.  
Hacker, F., and P. Gilchrist, 1217,  
1221, 1287  
Hackert, J., 2718  
Hackett, A., 2726.  
Haddan, H., 296.  
Haddan, J., 2748.  
Haddan, R., 3034.



- Haddock, 2820  
*Haddock, V., see T. Hills*  
 Haddock, W., 2850.  
 Haddon, A., 2891.  
 Haddow, T., 2892.  
 Hadfield, H., 296.  
*Hadow, see Dawson.*  
 Hadow, 1601, 2813.  
 Hadow, E., 1589, 1641, 1647.  
 Hadow, H., 2801.  
*Häg, E., see A. Westad.*  
 Haech, A., 2649.  
 Haeck, A., 2419, 2642.  
 Haeck, F., 2412.  
 Haefner, A., 307.  
 Haeg, 1070.  
*Hagg, E., see A. Westad.*  
*Hagglund, E., see F. Berguis.*  
 Haglund, E., 197, 198, 203, 382, 546, 657.  
 Hachnel, W., and M. Mugdan, 2653.  
 Hahner, W., 1011, 1302.  
*Hähle, see C. Kurtz-Hähle.*  
 Hahnle, C., 296.  
 Haemmelmann, A., 2571.  
*Haemers et van Den Buijers, see Soc Haemers et van Den Bavijs*  
*Haen, E., de, see J. Hermans.*  
 Haen, E., de, 73, 955, 1100, 1103, 1121, 2639.  
 Haen Chem. Fabrik "List," E. de, 2631, 2653.  
*Hänisch, see G. Keppeler.*  
*Haenisch, E., see M. Schroeder*  
 Hanisch, E., and M. Schroeder, 291, 1015, 1059, 1077, 1088, 1092, 1100, 1107.  
 Hanisch, G., 1271, 1291.  
*Haenke, see Taddeo-Haenke*  
 Haensel, H., 2591.  
 Haentzschel, E., 671.  
*Haert, L., see L. Geveart Haert*  
 Haertling, K., 227.  
 Häusser, 693.  
 Haeusser, F., 693, 695, 700, 838.  
 Haeussermann, 123, 124.  
 Haeussermann, C., 1668, 1670, 1688, 1729, 1899, 1904, 2072, 2316, 2752, 2988, 3019.  
 Häussermann, C., and F. Niethammer, 1380.  
 Hagemann, C., and F. Zimmermann, 1789.  
 Hagen, von der, 1925.  
*Häfer, H., see W. Muthmann.*  
 Hafely, A., and J. Redlefsen, 2717, 2718.  
 Hafely, A., J. Redlefsen and C. Happe, 2684.  
*Haff, M., see T. Wilson.*  
 Hafner, B., and F. Krist, 296.  
*Haga, T., see E. Divers.*  
 Hagelberg, W., 2612, 2745, 2856.  
 Hagemann, C., 296.  
 Hagemann, C., and F. Zimmermann, 2660, 2675.  
 Hagemann, C., and T. Zimmermann, 1791.  
*Hagemann, G., see O. Zimmermann.*  
 Hagemann, G., 1391, 2617, 2671.  
 Hagen, C., 2710, 2851.  
 Hagenbach, E., 1722, 2497, 2499.  
 Hagendorf, K., 2772.  
 Hagendorf, K., and A. Breslauer, 2764, 2772.  
*Hagenlocher, E., see C. Gray.*  
 Hager, 2793.  
 Hager, C., and J. Kern, 934.  
 Hager, E., 2419.  
*Hager, G., see Koelner Accumulatoren Werke G. Hager*  
*Hager, G., see E. Scott,*  
 Hager, G., 92.  
 Hager, H., 1040, 1329, 1340, 2453, 2474, 2789.  
*Haggan, E., see H. Lee.*  
*Hägglund, E., see R. Dieckmann*  
 Hagglund, E., 307.  
 Haglund, G., and A. Gronningsaeter, 1075.  
*Hahn, A., see E. Deussen.*  
 Hahn, E., 459.  
 Hahn, P., 227, 231, 664, 3065.  
 Hahn, S., 2575, 2719.  
 Haight, F., 2792, 2616.  
 Haign, L., 2417.  
 Hailer, E., 1094.  
 Haines, R., 2736.  
 Hainker, F., 2684.  
 Hairon, F., 2787.  
 Haitinger, I., 2452, 2474.  
 Hakansson, P., 2385, 2502.  
 Hake and Bell, 1883.  
 Hake and Lewis, 3021.  
 Hake, C., 2926.  
 Hake, C., and M. Bell, 582.  
 Hake, C., and R. Lewis, 582, 1883, 1884, 1907, 1909, 2301.  
 Halbach and Bockmann, 2681, 2711.  
 Halben, R., 2692.  
 Halbleib, E., and T. Lee, 2772.  
*Haklane, J., see W. Butterfield.*  
 Haldy, B., 2862.  
 Hale, E., 2702.  
 Hale, F., 390, 410, 949.  
 Hale, F., and G. Bell, 2982.  
 Hale, F., and A. Scott, 949, 960, 996.  
 Hale, R., 2580.

- Hale, W., and F. Vibrans, 671, 932, 934.  
Halen, S., 2658, 2671, 2675, 2767, 2898.  
Halford, H., 1636.  
Halkyn, 2242.  
Hall, 837, 1456, 1618, 2809, 2810  
Hall, B., 2586  
Hall, E., see A. Smith  
Hall, H., see C. Steward  
Hall, H., see S. Zambuhl  
Hall, J., see A. Ashworth  
Hall, J., see J. Fisher.  
Hall, J., see F. Moore.  
Hall, J., 566, 1785, 2688  
Hall, J., T. Gibb and C. Gelstharp, 1292.  
Hall, J., & Sons, 1579, 1618  
Hall, R., see *Electric and Ordnance Accessories Co.*  
Hall, R., and H. Duxbury, 2643  
Hall, W., see E. Knecht.  
Hall, W., see J. Proelss.  
Hall, W., 226, 229, 296, 712, 1023, 1025, 1028, 1033, 1072, 1073, 1075, 2600, 2651, 2761  
Hallberg, 2787  
Hallenbeck, 2813  
Haller, 660, 1753, 2367  
Haller, A., see A. Guyot  
Haller, A., 2513, 2526.  
Haller, A., and E. Bauer, 2535  
Haller, A., and Bechamp, 2525  
Haller, A., and F. March, 2535  
Haller, A., and J. Minguin, 2514, 2521.  
Haller, A., and P. Muller, 2514  
Haller, P., 1098  
Haller, R., 66, 115, 141, 503, 520, 610, 617, 3067, 3077.  
Haller, W., 2593.  
Halleur, 2814.  
Halliburton, W., 326  
Hallier, H., 2825  
Halliwell, R., 2704, 2708  
Hallock, W., 1111, 1121, 1302  
Halluin, D d', 2384, 2487, 2692  
Hallwell, P., 824, 825, 1264  
Halman, I., 2563, 2564  
Halmi, J., see M. de Leves  
Halpen, 2813.  
Halpern, K., see G. Baumert.  
Halphen, G., 2417, 2461.  
Halsey, W., 2712, 2685, 2688  
Halske, see Siemens  
Halvorsen, B., 893, 896, 1000  
Halvorsen, B., see *Norske Aktieselskab, f. Elektrokemisk Ind.*  
Halvorsen, M., see *Norske akt. f. Elektrokemisk Ind*  
Hamberg, 671  
Hamberg, M., 2455  
Hamblin, H., and C. Hollborn, 2878.  
Hambrock, L., 2563  
Hamburger, H., see Z. Skraup  
Hamburger, I., 2750  
Hamburger, I., 671, 898, 1006B  
Hamburger, S., 1094, 1247, 1261.  
Hamecher, H., 2739, 2743.  
Hamecher, H., and C. Gebell, 2738.  
Hamel, M., 3002  
Hamel Aktiengesellschaft, 2631.  
Hamelin, A., see J. Duclaux  
Hamer, 1004.  
Hamilton, A., 1919, 3049  
Hamilton, O., 226  
Hamilton, I., see R. Hamilton  
Hamilton, J., 1789, 1790, 2492, 2551, 2984  
Hamilton, R., and I., 296  
Hamilton, S., 2721  
Hamilton Powder Co., 1810  
Hamlet, W., 2475  
Hamlin, C., see C. Ernst  
Hamlin, M., 184  
Hamlyn, G., see C. Weizman  
Hamlyn-Harris, 2781  
Hammatt, C., 2406  
Hammichman, A., 2496  
Hammer & Vorsak, 2694, 2705  
Hammer, T., 2405.  
Hammersley, C., 2739.  
Hammick, D., 895  
Hammond and Spence, 1078  
Hammond, A., see V. Majerus.  
Hammond, E., 2772  
Hammond, J., 1299.  
Hammond, I., see E. Chambers  
Hamner, S., see J. Howe.  
Hamolatch, 1589  
Hampel, H., and R. Steinau, 898.  
Hampel, O., 2641  
Hampson, J., 2707.  
Hamsik, A., 2468.  
Hanahan, M., 1063, 1075, 1289.  
Hanak, L., see H. Seidel.  
Hanauer Kunstseidefabrik Aktien Gesellschaft, 86, 2644, 2649, 2654, 2655  
Hanausek, 499, 2627, 3062.  
Hanausek, E., 230, 296, 3062.  
Hanausek, E., and R. Zaloziecki, 296  
Hanausek, T., 110, 296, 489, 657.  
Hancock, J., 2511, 2707.  
Hancock, W.; and O. Dahl, 264, 296, 1806.  
Haydl, A., see R. Pribram

- Handl, A., and R. Pribram, 2432, 2504, 2506, 2508, 2509.  
 Hands, R., 2573  
*Handschiegl, M.*, see *A. Wyckoff*.  
 Handschiegl, M., 2900.  
 Handy, J., 2772  
 Hanemann, L., 462.  
 Hanish, R., 2900.  
*Hanlon*, see *O'Hanlon*  
 Hanmer, G., 2862  
*Hann, E.*, see *W. Greaves*  
 Hanna and Major, 898  
 Hanna, J., 98.  
 Hanna, T., 104.  
 Hanna, W., and J. Bryant, 2563  
 Hannaford, 2825, 2831.  
 Hannaman, 389  
 Hannan, 504.  
 Hannan, R., and E. Mills, 2957  
 Hannay, J., 459, 795, 1015, 1059, 1217, 1222, 1303  
 Hannay, J., and J. Hogarth, 1015.  
 Hanneke, 2851.  
 Hanneke, P., 2780, 2854, 2856, 2857, 2858, 2862  
 Hannelle, V., 1366  
 Hannot, 2828, 2848  
*Hanofsky, C.*, see *F. Breml*.  
*Hanow, H.*, see *O. Saare*  
 Hans, A., 2864.  
 Hansel, B., 2591, 2614, 2615  
 Hansel, S., 2609, 2681  
*Hansen*, see *K. Leschly-Hansen*  
 Hansen, 197, 2658  
 Hansen, B., 932  
 Hansen, B., and Z. Johansen, 2563.  
 Hansen, C., 804, 1027.  
 Hansen, C., and A. Weindel, 2996  
 Hansen, E., 127.  
 Hansen, M., 461  
 Hansen, N., 1755, 2274  
*Hansmann*, see *Sauerstoff*.  
 Hanson, C., 125  
 Hanson, D., 305  
 Hanson, F., 2747  
 Hanson, J., 291, 1075, 1292  
*Hanstain, O.*, see *H. Russak*.  
 Hantzsch, A., 671, 1312, 2772, 2464, 2467.  
 Hantzsch, A., and K. Schmiter, 243.  
 Hantzsch, A., and F. Sebaldt, 953.  
 Haon, H., 2608.  
*Happe, C.*, see *A. Hafely*.  
*Hara*, see *O'Hara*.  
*Hara, L. O.*, see *T. Johnson*.  
 Hara, R., and R. Hayashi, 934.  
 Harbold, G., 2791.  
 Harbord, 1030.  
 Harburger Chemische Werke Schön & Co., 2997.  
 Harburger Chemische Werke Schön & Co., and W. Daitz, 695.  
 Harburger Eisen und Bronzewerke Aktien-Gesellschaft, and G. Koeber, 2558.  
 Harburger-Stärke-Fabrik, 452.  
 Harcombe, J., 2684, 2701.  
*Harcourt*, see *Vernon-Harcourt*  
 Harcourt, 85, 2494, 2495  
 Harcourt and Lupton, 671.  
 Harcourt, A., and F. Fison, 1015.  
 Hardecastle, J., 2938.  
 Hardecastle, J., and A. Taylor, 2992.  
 Hardecastle, T., 2707  
 Harden, A., 2484  
*Harden, T.*, see *S. Smith*  
 Harding, C., and K. McEachron, 1005.  
*Harding, T.*, see *C. Hudson*  
 Harding, V., 3023.  
 Harding, V., and R. MacLean, 671.  
 Hardt-Strenkayr, E. v., 186, 2988  
 Hardwich, 2801, 2804, 2812, 2815, 2825, 2840.  
 Hardwich, A., 1591, 1701  
 Hardwich, F., 1952, 2801, 2803, 2806, 2808, 2811, 2812, 2813, 2814, 2815, 2816, 2819, 2826  
 Hardwich, T., 2826, 2831, 2832  
 Hardwick, W., 1339.  
*Hardy, E.*, see *J. Regnaud*  
 Hardy, E., 2430  
 Hardy, W., 402, 435.  
 Hare, R., 713, 2788.  
 Harger, 671.  
 Harger and Lever Brothers, 688, 852.  
 Harger, J., 1004  
 Hargreaves, A., 2945, 2974  
 Hargreaves, A., and Curtis and Harvey, Ltd., 2957  
*Hargreaves, G.*, see *J. Hargreaves*.  
 Hargreaves, J., 1239, 2612  
 Hargreaves, J., and T. Bird, 1299  
 Hargreaves, J., and T. Robinson, 1075, 1299  
 Hargreaves, J., T. Robinson & G. Hargreaves, 1070.  
*Hargreaves, L.*, see *T. Hutchins*.  
 Hargreaves, W., 296, 2954.  
 Hargreaves, W., and W. Rowe, 2302, 2303.  
*Hargue*, see *J. MacHargue*  
*Haring, K.*, see *Anhydrit-Leder Werke A. G.*  
*Haring, K.*, see *Spalteholz*  
 Haring, K., 2602, 2609, 3061.  
 Harkins, W., E. Davies, and G.

- Clark, 32.  
**Harkortsche Bergwerke und Chemische Fabriken**, 1235  
 Harle, J., 1859  
 Harley, H., 2861  
*Harley, J., see J. Polson*  
 Harley, J., 454.  
 Harman, A., 2818  
 Harmer, H., 2837  
 Harmer, J., 2818, 2864, 2866  
 Harmuth, 1115  
*Harmuth, A., see G. Eschellmann*  
*Harmuth, A., see H. Eschellmann.*  
 Harnack, E., 2411.  
*Harnak, E., see O. Schmiedeberg*  
 Harnak, E., and H. Meyer, 2442  
 Harnecker, 2825  
 Harnst, C., 278.  
 Harper, C., and J. Moody, 2695  
 Harper, G., 2563  
*Harper, W., see Woodcock*  
 Harper, W., 2406  
 Harpf, 197, 524  
 Harpf, A., 279, 307, 1015, 1033, 1059, 1092  
 Harpf, H., 307  
 Harrass, B., 2718, 2766  
 Harries, C., 3005  
 Harries, G., and J. Palmen, 2523  
 Harrington & Co., E., 2718  
 Harrington, J., 2600  
*Harris, see Hamlyn-Harris*  
 Harris, C., and H. Neuschemer, 2532.  
 Harris, C., and H. v. Splawa-Neyman, 2517  
 Harris, F., 2722, 2726, 3023  
 Harris, G., 2866.  
*Harris, H., see J. Wilson*  
 Harris, H., 1375, 2565  
 Harris, E., 1875  
 Harris, J., 1072, 1073, 1078, 1370, 1390, 2574, 3060  
 Harris, J., and D. Thomas, 1206, 1207, 1209, 1216, 1251, 1269, 1281, 1375  
 Harris, N., 2785.  
 Harris, R., 2686.  
 Harris, T., 1206, 2915  
 Harris, V., 2736  
 Harrison, 180, 1625, 2820  
 Harrison and Bottomley, 2874  
 Harrison, C., and W. Bacon, 1836  
 Harrison, C. W. Bate, and W. Perks, 2558.  
*Harrison, E., see J. Stevens.*  
 Harrison, E., 3080  
 Harrison, E., and C. Thurber, 2722.  
 Harrison, G., 2738.  
*Harrison, J., see H. Kearney*  
 Harrison, T., 2601, 2619  
 Harrison, W., 18, 97, 178, 411, 2817, 2818, 2854, 2866, 2868, 2901, 2905, 3065  
 Harriss, J., 2787  
 Harrocks, W., and J. Tullis, 307  
 Harrop, C., 2591  
*Hart, see Barker.*  
 Hart, 747, 749, 758, 759, 761, 764, 771, 779, 1434, 1483.  
 Hart, A., 86, 1876, 1880, 2015, 2603, 2660, 2685, 2692, 2917  
*Hart, B., see R. Winsloe*  
*Hart, B., see R. Winsloe*  
 Hart, B., and G. Badly, 1217, 1221, 1216, 1224  
 Hart, E., 671, 747, 748, 749, 799, 800, 1015, 1023  
 Hart, F., 2905, 2920  
 Hart, H., 2603, 2696  
 Hart, N., and R. Bacon, 2681, 2691, 2729, 2745  
*Hart, P., see R. Heilmann*  
 Hart, P., 1059, 1081, 1092, 1241, 1351  
*Hart, W., see W. Smith*  
*Hart Accumulator Co., see E. Clark.*  
 Hart Accumulator Co., 959.  
 Harter, H., and H. Braun, 10064  
 Harth, A., 2861  
 Hartig, 1584, 1761  
 Hartig, T., 242  
 Harting, 2  
*Hartley, R., see I. McDougall*  
 Hartley, V., 2739.  
 Hartley, W., 51, 436, 671, 1015, 2403, 2414, 2514, 2912  
 Hartman, L., 2595  
 Hartmann, 307, 1351.  
*Hartmann & Benker, see O. Carlson*  
*Hartmann, F., see F. Benker.*  
*Hartmann, E., see A. Duron*  
 Hartmann, E., 1207, 1211, 1212, 1217, 1218, 1222, 1225, 1226, 1243, 1283, 1423  
 Hartmann, E., and F. Benker, 1072, 1090, 1209, 1246, 1218, 1230, 1240, 1250, 1266, 1291, 1355, 1367, 1386, 1387  
 Hartmann, E. Gesellschaft, 1209.  
 Hartmann, K., 2492, 2493, 2608, 2620, 2710.  
 Hartmann, W., 950, 1059, 1356  
 Hartnett, J., and L., 2910  
*Hartnett, L., see J. Hartnett*  
 Hartogs, J., 86, 2624, 2631, 2645, 2647, 2649, 2660, 3073  
*Hartridge, A., see J. Marsh.*

- Hartshorne, 510.  
 Hartstock, J., 2696.  
 Hartter, P., 3057.  
*Hartung, von, see Capitaine.*  
*Hartwich, E., see F. Schnell.*  
 Hartwig, A., 727.  
 Hartwig, H., and A. Feltmann, 2739.  
 Hartwig, K., 2409, 2455.  
 Harveng, H. d', 2564, 2567.  
*Harvey, seq Curtis & Harvey, Ltd.*  
 Harvey, A., 307.  
 Harvey, F., 2725.  
 Harvey, H., 2832.  
 Harvey, J., 1087, 2854, 2866.  
*Harvey, M., see C. Davin.*  
 Harvey, S., 477.  
 Harvey, W., 2719, 2785.  
 Harworth, E., 1081.  
 Harz, C., 390, 409.  
 Harz, E., 425.  
 Hasburg, J., 2745.  
*Hasche, R., see M. Pardee*  
 Hase, 2812.  
 Hase, G., 2551, 2672.  
*Hasek, J., see R. Goldschmidt*  
 Haseler, W., 2695, 2717.  
 Haselhof and Lindau, 1094.  
*Hasenbach, see Clemm*  
 Hasenbach, C., 716, 718.  
*Hasenbach, W., see A. Clemm.*  
 Hasenbach, W., 1109, 1115, 1119, 1350.  
 Hasenbach, W., and A. Clemm, 1116.  
*Hasenbäumer, J., see J. Koenig.*  
 Hasenbäumer, J., 279.  
 Hasenbäumer, J., M. Braun, and J. König, 275, 279.  
 Hasenclever, 1077.  
 Hasenclever, M., 817, 1062, 1070, 1073, 1078, 1080, 1212.  
 Hasenclever, R., 1077, 1081, 1086, 1094, 1210, 1360.  
*Hasenfrazz, F., see L. Bonneau*  
 Hashiride, T., and T. Takane, 1033.  
 Haskell, H., 2682, 2687.  
 Haskell, H., and C. Brigham, 2724.  
 Hasketh, E., and F. Willcox, 1427.  
 Haskin, S., 98.  
 Haslam, T., 2710.  
 Haslam, W., 2703, 2741.  
 Haslup, 671.  
 Haslup, E., 685, 694, 848, 849, 896, 921, 926, 933.  
 Haslup & Peacock, 724.  
 Hassack, C., 2650, 2652, 3052, 3054.  
 Hassack, K., 2761.  
 Hasse, 2494.  
 Hasse, M. & Co., 1633.  
 Hasse, P., 2409, 2412.  
*Hasse, R., see W. Windisch.*  
*Hassel, C., see M. Dittrich.*  
 Hasselberg, B., 1015.  
 Hasselberg, S., 718.  
 Hasselmann, F., 2601.  
 Hasslacher, F., 227.  
*Hassler, F., see M. Dennstedt*  
 Hasslinger, R. v., 1015, 1037.  
*Hassloch, see Pulver Fabrik.*  
*Hassmann, S., see E. Grasset.*  
 Hassreidter, V., 1080.  
 Hassreidter, V. and P. Van Zuylen, 1051.  
 Hastings, G., 2696, 2697.  
 Hatch, R., 33.  
 Hathaway, G., 2962.  
 Hatschek, E., 1771, 2820.  
 Hatschek, M., 1088.  
 Hattensauer, G., 1056.  
 Hatton, C., and J. Bucher, 922.  
 Hatton, F., 710, 713.  
 Hatton, R., 2723, 2726.  
 Haubold, C., 226, 227, 1954, 1976, 1977, 3066.  
 Hauck, 2825.  
 Haudricourt, L., 2589.  
 Hauers, R., 206.  
 Hauers, R., and B. Tollens, 206, 238.  
 Hauser, 704.  
*Hauff, von, see Vignon.*  
*Hauff, A., see A. Schweitzer.*  
*Hauff, F., see K. zu Lowenstein.*  
*Hauff, F., see A. Schweitzer.*  
*Haug, A., see E. Hauser.*  
 Haug, C., and H. Magnuson, 452.  
*Haughton, G., see S. Tungay.*  
 Haugk, F., 2861, 2868.  
 Haugk, M., 2875.  
 Haupt, K., 224.  
*Hauron, L., du, see Soc. Anon. Plaques Pellicules et Papiers.*  
 Hauron, L. du, 2870, 2872, 2875, 2878, 2881, 2886, 2902.  
 Hauron, L., du, and R. de Bercegol, 2879.  
*Hauron, L., Ducos du, see L. du Hauron.*  
 Hauser, E., and A. Haug, 1804.  
 Hauser, O., and H. Herzfeld, 151.  
 Hauser, O., and A. Klotz, 2509.  
 Häuser, O., and H. Muschner, 416, 3021.  
 Hausleiter, F., 2910.  
 Hausman, J., 1307.  
 Hausmann, 994.  
 Hausmann, F., 987.  
 Hausser, F., 848, 1001.

- Haussner, A., 307, 3062.  
*Hautefeuille, P., see L. Cailletet.*  
*Hautefeuille, P., see L. Troost.*  
 Hautefeuille, P., 1059.  
 Hautefeuille, P., and J. Chappius, 671.  
 Haven, G., 3050.  
 Havens, V., 729.  
 Haves, P., 2643.  
 Havik, H., 297.  
 Haviland, 1081.  
 Hawes, D., 958, 2597, 2700.  
 Hawkins, F., 2704.  
 Hawkins, T., 1869, 2024, 2400, 2957.  
 Hawkins, W., 2928.  
 Hawley, A., P. Crossland, and F. Dixon.  
 Hawley, F., 1055.  
 Hawley, L., 2398, 2408, 2569.  
 Hawley, L., and R. Palmer, 2408.  
 Hawliczek, J., 2396.  
 Haworth, E., 1086, 1291, 2710.  
*Haworth, H., see T. Kerfoot.*  
 Haworth, W., and A. King, 2523.  
*Hause, V., see E. Hoffman.*  
*Hay, D., see G. Hay.*  
 Hay, G., 2861.  
 Hay, G., and D., 2919.  
 Hay, H., 2722.  
 Hay, M., 1708, 1716.  
 Hay, W., 2717.  
*Hayashi, R., see R. Hara.*  
 Haycroft, J., 2916.  
 Hayden, J., 698.  
 Hayduck, J., 2475.  
 Haye, de la, 2802.  
 Hayes, A., 1345.  
 Hayes, B. and J., 2711.  
*Hayes, J., see B. Hayes.*  
 Hayhurst, 671.  
 Hayhurst, W., 750, 751, 958, 1518.  
 Haymen, H., 2592.  
 Haynes, C., 391.  
 Haynes, E., 2704.  
 Haynes, F., 2723, 2728.  
 Hays, C. and J., 2682.  
*Hays, J., see C. Hays.*  
 Haywood, D., 2714.  
 Hazard, 2837.  
 Hazard-Elamand, M., 687.  
 Hazel, J., 2889, 2890.  
 Head, P., 2414.  
 Head, R., 2736.  
*Heald, R., see D. Bowack.*  
 Healy, A., 71, 77.  
 Healey, A., and J. Williams, 77, 2650.  
 Heany, J., 2766. °  
 Hearn, C., 2850.  
 Hearn, R., 2698.  
 Hearsey, E., and C. Joyce, 981.  
 Hearsev, W., 2708.  
 Hearson, C., 2700.  
 Heaton, C., 2685, 2745.  
*Heaton, R., see J. Copley.*  
*Heath, V., see L. Belitzski.*  
 Heath, V., 2822.  
 Hebden, G., 671.  
 Hebden, J., 343, 619.  
 Heber, E., 2570.  
*Heberlein & Co., see Huntington.*  
 Heberlein & Co., 151, 228, 230, 2638, 2692, 3066.  
*Heberlein, E., see F. Kuster.*  
 Heberlein, E., 223, 228, 233, 2606, 2624, 2638, 2641, 3066.  
*Heberlein, F., see F. Huntington.*  
 Hebert, 398.  
 Hebert, A., 348.  
 Hechenbleikner, I., 998, 1348, 1390.  
 Hechenbleikner, I., and Southern Electro-Chemical Co., 1287.  
 Hecht, H., 1015.  
*Heck, see C. Meyer.*  
 Heck, C., 671.  
*Heckel, F., see Kennedy.*  
*Hecker, see Schmidt.*  
*Hecker, see C. Schmidt.*  
*Hecker, see E. Schmidt.*  
*Hecker, B., see Chem. Werke Furstenwalde.*  
 Hecker, F., and E. Schmidt, 1583.  
*Heckford, see Sindall.*  
 Heetzko, A., 1055.  
 Hedalen, J., 308.  
 Hedberg, K., 2940.  
 Hedden, H., 2849.  
 Hedden, H., and C. Hill, 2849.  
 Hedden, M., 308.  
*Heden, J., see C. Waite.*  
 Heden, J., 297.  
*Hedenburg, O., see J. Nef.*  
 Hedenstrom, 1232.  
 Hedenstrom, A. von, 255.  
*Hedin, J., see C. Waite.*  
 Hedin, S., 2434.  
*Hedouin, A., see Guignard.*  
 Heede, H., 2681.  
 Heemkerck, 1625.  
 Heen, P. de, 1059, 2433, 2442, 2497, 2502, 2504, 2506, 2507, 2508, 2509.  
 Heepe, C., 2601.  
*Heeren, see Karmarsch.*  
 Heeren, F., 1059, 1588.  
 Heeren, M., 2670.  
 Heeren, W., 2614, 2745.  
 Heermann, P., 1900, 2624.

- Heess, J., see E. Mann*  
 Heffter, A., 1015, 2534.  
 Heffter and Juckenack, 2433, 2437.  
*Hefner, see Kruss-Hefner.*  
 Hefner, 2494  
 Hefner-Altenack, F. von, 2494.  
 Hefti, F., 2552.  
 Hegel, 2557  
 Hegeler, 1072, 1079  
 Hegeler, E., 1071  
*Hegeler, H., see N. Heinz*  
 Hegeler, H., 1091  
 Hegeler, H., and N. Heinz, 1092,  
 1110, 1203, 1211, 1239, 1282, 1390  
 Heger, U., 2861.  
 Hegler, 243, 262, 274  
 Hehner, O., 1335.  
 Heid, 2812.  
*Heide, R. von der, see A. Loewy.*  
 Heidemann, C., 2741  
*Heidenau, see Chem. Fabrik Heidenau*  
 Heidenhaim, 66  
*Heidenreich, O., see P. Jannasch.*  
 Heidenreich, O., 1055, 1056.  
*Heidenstam, G. von, see P. Klason*  
 Heidepreim, F., 457.  
 Heider, 2782, 2784.  
 Heidlberg, T., 2417  
 Highway, W., 2809, 2849  
*Heigis, O., see M. Muller*  
 Heil, H., and E. van den Kerkhoff,  
 2586.  
 Heilborn, E., 2508, 2509  
*Heilbron, I., see G. Henderson.*  
 Heilmann, 233.  
 Heilmann & Co., 233  
 Heilmann & Co., A. Lipp and M.  
 Battegay, 3077.  
 Heilmann, R., and P. Hart, 1011.  
 Heilrath, C., 2713  
*Heim, F., see J. Rosenheimer.*  
 Heim, L., 2464.  
 Heimann, S., 2492, 2506  
 Heimerdinger, E., 2734, 2736  
 Heimrod, A., and H. Egbert, 1121,  
 1394.  
 Heincke, W., 2730  
 Heindl, J., 2413.  
 Heine, C., 1090  
 Heine, E., 1073.  
 Heine, F., 459  
*Heine, H., see L. Just*  
 Heine, Gebrüder, 1954, 1975, 2064  
 Heine, Gebrüder, and Farberien,  
 v. J. Schetty Sohn, 1975  
 Heinemann, A., 2500, 2502, 2772  
 Heinke, J., 156.  
 Heinker, F., 2608.  
 Heinrich, G., 2405, 2435, 2444.  
 Heinrich, W., 1027.  
 Heinsohn, D., 2709, 2711.  
 Heintschel, E., 2772.  
 Heintz, E., 390, 411.  
 Heintz, R., 1219, 1221.  
 Heintz, W., 894, 2401  
 Heinz, 1221.  
 Heinz, C., 1271.  
*Heinz, N., see J. Geib.*  
*Heinz, N., see H. Hegeler.*  
 Heinz, N., 1229, 1239, 1291.  
 Heinz, N., and M. Chase, 1223,  
 1288, 1291.  
 Heinz, N., and W. Freeland, 1078.  
 Heinz, N., and H. Hegeler, 1291.  
 Heinz, N., and H. Petersen, 1288  
 Heinz, R., 1222, 1267, 1291.  
 Heinze, B., 1037.  
 Heinze, E., 1029.  
 Heinzelmann, 2414  
 Hemzelmann, C., 2475.  
 Hemzelmann, G., 2417, 2468  
*Heinzerling, C., see C. Moldenhauer.*  
 Hemzerling, C., 2555  
 Heisch, 2807, 2825  
*Heisch, C., see L. Belitzski.*  
 Heisch, C., 2814  
 Heisch, C., and H. Vogel, 2807  
 Heise, F., 2986.  
 Heise, G., and H. Foote, 1006.4  
 Heizberg, T., 2394  
*Helbig, see Schaffner*  
 Helbig, D., 671, 703, 716, 717, 718,  
 721, 849, 900.  
 Helbig, M., 1030  
 Helbig, S., 716.  
*Helbig, W., see M. v. Schaffner*  
 Helbig, W., 1030.  
 Helbing, C., 2584  
 Helbing, H., and G. Pertsch, 2584,  
 2741.  
*Helbronner, see P. Pipereaut*  
*Helbronner, A., see R. Levy.*  
 Helbronner, A., and G. Criquebeuf,  
 2500.  
 Helbronner, A., and E. Vallee, 92,  
 2611, 2647, 2765, 3051.  
 Held, H., 2560.  
 Held, L., 2718  
*Heldey, J., see C. Tyers.*  
*Heldt, W., see F. Rochleder.*  
 Helen, J., 2580  
 Helen, K., 2859.  
 Helfenstein, A., 849.  
 Helff, A., 1015.  
 Helfritz, K., 538  
*Helin, H., see E. Ahlfors.*  
 Helioseur-vertrieb Gesellschaft, 2920.  
*Hell, C., see E. Ehlenmeyer.*

- Hell, C., and F. Urech, 2453  
 Hellberg, P., 2631, 2632.  
*Heller, see Kreidl.*  
 Heller, G., 3034.  
 Heller, G., and G. Fiesselmann, 2772.  
*Heller, H., see E. Stenger.*  
 Heller, J., 2781.  
 Hellfrisch, C., 461.  
*Hellhoff, A., see H. Gruson*  
*Hellmers, see Traime*  
 Hellot, 31.  
 Hellriegel, C., 2616, 2755.  
 Hellsing, G., 1030.  
 Hellwig, W., 297.  
 Hellwig, W., and F. Herrmann, 297.  
*Helm, J., see H. Lyer*  
 Helm, L., 2736, 2772.  
*Helmers, see Traime*  
 Helmhacker, R., 1015.  
 Helmholtz, H. v., 2487, 2495.  
 Helms, N., 1209.  
 Helsingborgs Kopparkar Aktiebolag, 1073, 1078.  
 Hement, F., 2623.  
*Hemilian, W., see D. Mendeleeff*  
 Hemmingway, H., 814, 918, 986.  
 Hemingway, W., 849.  
 Hemje, C., and T. Brecht, 2678.  
 Hemm, 2793.  
 Hemming, E., and Hemming Manufacturing Co., 2772.  
*Hemming Manufacturing Co., see L. Hemming*  
*Hempel, see Alberti*  
 Hempel, 701.  
 Hempel, A., 2511, 2514, 3003, 3004.  
 Hempel, O., 2650.  
 Hempel, W., 671, 710, 934, 1015, 1082, 1100, 1260, 2424.  
 Hemptinne, A. de, 937, 945, 1219, 1380, 2404, 2433, 2488, 2498, 2500, 2502, 2506, 2507, 2508.  
 Hemptinne, A. de, and A. Bekaert, 2433.  
*Henault, see O. Dony-Henault.*  
 Henschman, T., 2018, 2019, 2028.  
 Henckel, A., 492.  
 Henckel-Donnersmarck, F. v., 3070.  
 Henckel-Donnersmarck, G. v., 3072.  
*Henderson, see Scott.*  
 Henderson, A., 2817, 2819, 2905, 2906, 2916.  
 Henderson, C., 2743.  
 Henderson, E., and T. McCall, 2986.  
 Henderson, G., and W. Caw, 2534.  
 Henderson, G., and I. Heilbron, 2522, 2523.  
 Henderson, G., M. Sutherland, and W. Scotland, 2523.  
 Henderson, J., 2843.  
 Henderson, J., and P. Jones, 2303.  
 Henderson, I., 2928.  
*Henderson, T., see A. Scott*  
 Henderson, T., 2980.  
 Henderson, W., 1011, 1076.  
 Henderson, W., and H. Weiser, 1096.  
 Henderson, Y., 2550.  
*Hendon Paper Works Company, see C. Budde*  
 Hendrick, E., 197, 308.  
 Hendrick, J., 2397.  
 Hendrick, W., 2924.  
 Hendricks, A., and G. Martin, 2703.  
*Hendricks, R., see A. Berkaut*  
 Hendrixson, W., 981.  
 Hendryck, H., 2600.  
*Hene, F., see F. Fischer.*  
 Hene, E., 671, 900.  
 Hene, E., and A. van Haaren, 671, 934.  
 Hengst, C., 328, 1636, 1804, 1806, 1811, 1826, 1875, 2957.  
*Henis, M., see L. Desmarais*  
*Hennus, see Wahl-Hennus Research Laboratory*  
 Henking, 2783, 2784.  
 Henle and Pfeufer, 1575.  
 Henley and Spill, 2671.  
*Henley, F., see J. Reilly*  
 Henley, F., 2397.  
 Henley, T., 2590.  
 Henley, T., and D. Spill, 2706.  
*Henley, W., see Despaquis*  
 Henley, W., 2662.  
 Henley, W., and D. Spill, 1875, 2700.  
*Henneberg, see Schulze-Henneberg.*  
 Henneberg, 242.  
 Henneberg, von, and Pfeuffer, 346.  
 Henneberg, J., 348.  
 Henneberg, W., 2.  
 Hennebutte, H., and A. Monseu, 2650, 3073.  
 Hennequin, D., 336.  
 Hennich, J., 2563.  
 Hennig, and A. Classen, 2426.  
 Hennig, G., 452.  
 Hennig, R., 2617.  
 Henning, C., 2957.  
 Henning, F., and J. Wetter, 2766.  
 Henning, G., 2772.  
 Hennings, C., 3094.  
 Henocque, 2854, 2920.  
 Henocque, A., 2861.  
*Henri, V., see H. Dogny.*  
 Henri, V., 3051.  
 Henri, V., and L. des Blancels, 2500.  
 Henrich, F., and W. Eichhorn, 671.



- Henrichsen, S., see S. Wleugel.*  
 Henrichsen, S., 2383, 2431, 2441,  
 2455, 2491, 2497, 2499, 2502, 2504,  
 2505, 2509 2836  
 Henrite Explosives, Ltd., 2972.  
 Henry, 292.  
 Henry, A., 2414.  
 Henry, C., 513, 2408, 2576, 2905,  
 3061.  
 Henry, J., 2563  
 Henry, L., 718, 2413, 2429, 2445,  
 2464, 2481, 2505.  
 Henry, M., 568, 2661.  
 Henry, O., 2600.  
 Henry, P., 2432, 2502  
 Henry, W., 710, 713  
 Henschke, F., 2772.  
 Hense, R., 2493.  
 Hensen, P., 2761  
 Henson, H., 2611  
 Hentschel, W., 2497  
 Hentze, W., 2687.  
 Henwood, 671.  
 Henwood, A., 898, 1005  
 Henzman, 3045.  
 Henzmann, M., 2761.  
 Heohnel, F. v., 242.  
 Hepburn, J., 2514  
 Heppe, G., 2502.  
 Hepworth, J., 1292.  
 Heraeus, 1361  
 Heraeus, W., 1324, 1366, 1367.  
*Herapath, W., see J. Thwaitte.*  
*Heraud, R., see Notelle*  
*Heraud, R., see P. Jacquemin.*  
 Herbabny, J., and O. Jolles, 2671,  
 2766.  
 Herbein, G., 297.  
*Herbert, see Soc. Neumann.*  
*Herbert-Dilette, G., see L. Schwob.*  
 Herbig, 499  
 Herbig, W., 218, 234.  
 Hercules Powder Co., 2504  
 Heresheimer, K., C. Bosch and A.  
 Mittasch, 2552.  
 Hering, 1072.  
 Hering, C., 1086, 1090.  
 Hering, O., 1890.  
 Heriot, T., 2424.  
*Heriesey, H., see E. Bourquelot.*  
 Herissey, H., 127.  
*Heritier, see Guibot.*  
 Herlin, C., 2957, 2974, 2986.  
 Herling, 2801.  
 Hermagis, F., 2837  
 Herman, E., 693, 940, 1005.  
 Heiman, H., and L. Lorenz, 2650.  
 Herman, W., 869.  
*Hermand, see du Boistesselin.*  
*Hermand, G., see C. Gimonet.*  
 Hermann, 2, 711.  
 Hermann, L., 710, 713.  
 Hermann, S., 2493, 2606.  
 Hermans, J., 90.  
 Hermans, J., and E. de Haën, 2639.  
 Hermstaedt, 1015.  
 Hermet, E., 2612, 3061.  
 Hermite, and Dubosc, 2024.  
 Hermite, E., 2675.  
 Hermite, E., and A. Dubosc, 426.  
 Hermite, E., E. Paterson and C.  
 Cooper, 426.  
 Hermite, F., 426.  
 Hermsdorf, L., and B. Teufer, 2638,  
 2650  
 Hernandez-Mejia, A., 2880.  
*Herne, S., see G. Wagner.*  
 Hermice, H., 2857.  
 Herodotus, 485.  
*Heron, J., see H. Brown*  
 Herre, 1363.  
 Herren, W., 2701.  
*Herreshoff, J., see G. Nichols.*  
 Herreshoff, J., 1063, 1072, 1073,  
 1085, 1090, 1091, 1092, 1107,  
 1110, 1112, 1124, 1192, 1198,  
 1199, 1200, 1201, 1224, 1288,  
 1291, 1391.  
 Herreshoff, J., and General Chemical  
 Co., 1082  
 Herreshoff, J., H. and G. Nichols,  
 1355.  
 Herrick, S., and C. Lunger, 2716  
 Herricke, 2782.  
 Herring, C., 1059  
 Herrington, G., 2736.  
 Herrmann, 66.  
*Herrmann, F., see W. Helweg.*  
*Herrmann, P., see J. Perl.*  
 Herrmann, R., 2452.  
 Herschel, 1577.  
 Herschel, J., 2798.  
 Herschkowitsch, M., 944.  
 Herschmann, W., 226, 231.  
*Hersey, S., see K. Huelt.*  
 Hershman, P., 919, 923, 937.  
 Herstein, B., 428, 1882, 1889  
 Hertel, G., 158.  
 Hertel, G., and G. Hornung, 454.  
 Herterbein, 2595.  
 Hertkorn, J., 250, 297, 2462, 2492,  
 2524, 2526, 2531, 2601, 2772.  
 Hertlein, H., 1015, 1059.  
*Hertling, v., see Capitaine.*  
 Hertzog, 555.  
 Hertzog, A., 564, 598, 1638.  
 Herve, A., 1681, 1719, 1910, 2310,  
 2759.

- Herve, M., 2671, 2919.  
*Hervell, J., see T. Torrance.*  
Hervey, C., 391, 428.  
Hervies, P., and M. Britin, 2787.  
*Herward, see Gunnol.*  
Herz, E., 1859  
Herz, F., 125  
Herz, I., 329  
Herz, J., 2619, 2687  
Herz, L., 297  
Herz, W., 806, 1004, 2409, 2464  
Herz, W., and H. Fischer, 2464.  
Herz, W., and A. Kurzer, 2484.  
*Herzberg, see Nolting*  
Herzberg, 2785  
Herzberg, L., 2881  
Herzberg, W., 287, 288, 379.  
Herzen, A., 343  
Herzfeld, 527, 2475  
Herzfeld, A., 184, 185, 238, 472, 474, 481.  
Herzfeld, E., and O. Rewidzoff, 2466  
*Herzfeld, H., see O. Hauser*  
Herzfeld, H., 2414, 2569, 2570, 2571, 2572  
Herzfeld, W., 238  
Herzheim, 2854, 2858.  
Herzheim, A., 97.  
Herzig, A., 1073  
Herzinger, 3080  
Heizmann, M., 3001  
*Herzog, see Behrens*  
*Herzog, see K. Suvern*  
Herzog, 61, 112.  
Herzog, A., 84, 243, 2632, 2638, 2643, 2647, 2652, 3052, 3054, 3066  
Herzog, E., 2484, 2641  
Herzog, H., 85.  
*Herzog, J., see W. Mancho*  
Herzog, R., and F. Horth, 297  
Hes, A., 736  
Hesch, J., 1391.  
Heschus, N., and N. Georgiewski, 1015  
Hesketh, E., and A. Marcet, 2066  
*Heslam, M., see W. Gillard.*  
*Heslop, O., see A. Carey.*  
Hess, 2324  
Hess, B., 955  
Hess, F., 1624, 1701, 2296, 2986  
Hess, F., and J. Schwab, 1624, 1717, 1819  
Hess, G., 1100.  
Hess, K., 662.  
Hess, P., 1717, 2343.  
Hess, W., 1212, 1216.  
*Hessberger, J., see O. Schonherr.*  
Hesse, A., 2393, 2512, 2518, 2538, 2568  
Hesse, F., 2584, 2614, 2692, 2687.  
Hesse, I., 2638  
Hessen, H., 2923  
Hess-Ives Co., 2882  
Hess-Ives Corp., 2896  
Hessler, W., 2646  
Hetherington, J., & Sons, 629, 630  
Hetper, J., 2408  
Heumann, K., 718, 1015, 1059  
*Heureuse, see A. D'Heugense*  
Heusch, E., 2590, 2612, 2711, 2722  
Heusch, E., and J. Pausseau, 2590  
Heusch, W. de, 1638  
Heuschen, I., 2957  
Heuser, E., 274, 663, 2675  
Heuser, E., and T. Blasweder, 274  
Heuser, E., and A. Haug, 274, 329, 671  
Heuser, E., and R. Sieber, 274  
Heuser, E., and C. Skioldebrand, 256, 274  
Heusschen, 1693  
Hewitt, D., 1030  
Hewitt, J., and W. Jones, 370  
Hewitt, J., and C. Lumsden, 3001  
Hewitt, J., and A. Turner, 2772  
Hewitt, P., 2908, 2919, 3047, 3050, 3051, 3061.  
Hexamer, A., 1919  
*Hey, H., see J. Smith*  
Heycock, C., and F. Neville, 1015  
Heyden, 3074  
*Heyden, von, see Chem. Fabr. von Heyden*  
Heyden, von, 2394  
Heyden, W. van der, and J. Jurgens, 2764  
Heydenhauss, H., 2647, 2752  
Heydenhauss, H., A. Banhegyi, and K. Glaser, 86, 2752  
*Heydorn, see Norddeutsche Preparation Fabr. Heydorn & Biegel*  
Heyer, F., 2391  
Heyl, C., 2600, 2621.  
Heyl, G., and T. Baker, 2467, 2492  
Heyl, G., 3050, 3054, 3061  
Heylands Co., 1094  
Heyl-Dia, G., 297, 2597.  
Heymann, B., 3002.  
Heys, J., and W. Thompson, 1010  
Heys, W., 686, 928, 2624.  
Heywood, J., 2741, 2742  
*Hezekiel, A., see O. Moh.*  
Hibbert, 112  
*Hibbert, E., see E. Knecht.*  
Hibbert, G., 297.

- Hibbert, H.*, see *H. Essex*.  
 Hibbert, H., 1848, 1870, 2390, 2401, 2468, 2542, 2997, 2999.  
 Hibbert, H., and H. Morton, 2995.  
 Hibbert, H., and E. I. du Pont de Nemours Powder Co., 2542.  
 Hibbert, H., and J. Sudborough, 434.  
 Hibbs, J., 671, 692.  
 Hibell, J., 2741, 2743.  
*Hickenbottom, W.*, see *J. Reilly*.  
 Hickenbottom, W., 2397.  
*Hickey, C.*, see *G. Baxter*.  
 Hickey, P., 2782, 2783.  
 Hickie, D., and G. Beutner, 2945, 2967, 2978, 2980.  
 Hidden, C., 934.  
 Hide-lte Leather Co., 151, 2603, 2620.  
*Hiemenz, W.*, see *C. Schwalbe*.  
 Hiepe, W., 480.  
*Higgin, A.*, see *C. Cross*.  
*Higgin, A.*, see *E. Rennie*.  
*Higgins*, see *Bleachers' Association*.  
*Higgins, C.*, see *J. Raschem*.  
*Higgins, C.*, see *J. Small*.  
 Higgins, C., 442, 2397, 2618.  
 Higgins, E., 3005.  
 Higgins, E., and E. Pitman, 1741.  
 Higgins, P., 1023.  
 Higgins, S., 522, 608, 617, 618.  
 Highley, S., 2891.  
 Highton, L., 2417.  
*Higson, G.*, see *R. Slade*.  
 Hilbert, H., 1075, 1119, 1122, 1129, 1300.  
 Hilbert, H., and Bayerische Aktien Gesellschaft, f. Chem. u. Landw. Fabrikate, 1107.  
 Hildebrand, 1779.  
 Hildebrand, P., 3023.  
 Hildebrandt, G., 687.  
 Hildebrandt, H., and P. Clemens, 2524.  
 Hildebrandt, K., 1073.  
 Hildebrandt, H., 2772.  
 Hildenbrandt, G., 3080.  
*Hilditch, P.*, see *A. Dunstan*.  
*Hilditch, T.*, see *J. Crosfield & Sons*.  
*Hilditch, T.*, see *A. Dunstan*.  
 Hilditch, T., 2705.  
*Hildt, E.*, see *C. v. Baranoff*.  
*Hildt, E.*, see *C. Claus*.  
 Hildt, E., 1029.  
 Hildt, E., B. de Montenegro, and J. Lasnier, 1030.  
*Hilger*, see *Husemann*.  
 Hilger, A., 2479.  
 Hilger, A., and W. Dreyfus, 12.  
 Hill, 1008, 1043, 2791, 2805.  
*Hill, A.*, see *A. Barratt*.  
*Hill, A.*, see *T. Johnson*.  
 Hill, A., 102, 106, 222, 336, 475, 482, 2612.  
 Hill, A., and A. Barratt, 2901.  
*Hill, C.*, see *H. Hedden*.  
 Hill, C., 671, 972, 2849.  
 Hill, E., 2595.  
 Hill, H., 2650.  
*Hill, J.*, see *W. Dunstan*.  
 Hill, J., 225, 1015, 1034, 1743.  
*Hill, M.*, see *F. Dunnington*.  
*Hill, Norris R.*, see *R. Norris*.  
 Hill, R., 1075, 1100, 1826.  
 Hill, W., 2849, 2920.  
 Hill, W., and R. Milne, 2761.  
 Hillaby, E., 2683.  
 Hillebrand, W., 671.  
*Haller, H.*, see *J. Pintsch*.  
 Hiller-Bombin, 2417.  
 Hillhouse, P., 2908, 2916.  
*Hillman, C.*, see *F. Stokes*.  
 Hillman, C., 2916, 2917.  
 Hillman, W., 2726.  
 Hills, E., 1081.  
 Hills, E., and B. Biggs, 1087.  
 Hills, F., 1010.  
 Hills, F., and G., 1010.  
*Hills, G.*, see *F. Hills*.  
 Hills, T., and V. Haddock, 1010.  
 Hills, W., 2789.  
 Hilyer, H., 1033.  
*Hilpert, W.*, see *E. Sweetland*.  
 Hilt, C., 1635.  
 Hiltermann, T., 2772.  
 Hulton, J., 455.  
 Hilton, R., 2500.  
 Hilwitz, O., 2592.  
 Humalaya, M., 2945, 2947, 2957.  
 Hime, C., and J. Noad, 77.  
 Hines, 2825.  
 Himes, C., 2832.  
 Himmel, R., 2588.  
 Himmelbauer, 1036.  
 Hinde, J., 151, 2660.  
 Hines, W., 2714, 2716.  
*Hinkins, J.*, see *S. Acree*.  
 Hinrichs, G., 692, 1015, 1206.  
 Hinsberg, 2988.  
 Hinterberger, H., 2877.  
 Hinterstoisser, H., 2658, 2678, 2740.  
 Hinzemaun, M., 2587, 2690.  
 Hinzke, A., 297, 1063.  
 Hiorth, A., 941.  
 Hiorth, F., 297.  
 Hiral, H., 3081.  
 Hirsch, 2743.  
 Hire, de la, 391.  
*Hirn, G.*, see *W. Ramsay*.

- Hirons, C., 2593  
*Hirsch, see Bradbury*  
Hirsch, A., 2421.  
Hirsch, F., 2595  
*Hirsch, F., see Friedrich & Co*  
Hirsch, H., 2472  
Hirsch, J., 3042  
Hirsch, R., 984, 985, 2417, 2772  
Hirschberg, A., 412  
Hirschberg, J., 2411  
*Hirschler, H., see V Hirschler*  
Hirschler, V., and H., 2589.  
*Hirsh, P., see E Abderhalden.*  
Hirst, G., 2681, 2722, 2756.  
*Hirst, S., see H Proctor*  
Hirth, A., *see Fortuna-Werke*  
Hirth, C., 2978  
Hirzel, 1589  
Hirzel, H., 2555, 2600  
Hirzel, S., 672  
Hisch, 2787.  
*Hise, see Van Hise*  
Hislop, 1629, 2825, 2885  
Hislop, G., 1015.  
Hislop, W., 2826, 2835  
Hitch, A., 671, 934.  
*Hitch, E., see Western Cartridge Company.*  
*Hitchcock, J., see J Hughes*  
Hitt, M., 2394, 2504  
*Hittorf, J., see J. Plucker.*  
Hittorf, J., 1015.  
*Hittorf, S., see J. Plucker.*  
Hjelt, E., 1338.  
Hlasiwetz, 2807, 2885  
Hlasiwetz, H., and L. Pfandler,  
1594, 1843, 1846  
Hlavati, 916.  
Hlavati, F., 695, 852, 940, 1006A.  
Hobday, S., 2492, 2578, 2692.  
*Hobsbawn, I., see Gibbs & Co.*  
Hobsbawn, I., 727, 731  
Hobsbawn, I., and J. Grigioni, 727  
Hochgurtel, M., 2724.  
Hochmann, W., 895.  
Hochofenwerk Luebeck Aktien Gesellschaft, 1310.  
*Hochstadter, I., see S Axelrad.*  
Hochstetter, F., 2782, 2896, 2897,  
2900.  
Hochstetter, H. von, 2993.  
Hochstetter, J., 1322.  
Hock, 2755  
Hockin, W., 2812  
Hocquet, M., 2601.  
Hodges, J., 2892.  
Hodgkins, N., 1087  
*Hodgkinson, F., see W. Hodgkinson.*  
Hodgkinson, H., 2559  
Hodgkinson, P., 2747  
Hodgkinson, R., 2984  
Hodgkinson, W., 1015, 1785  
Hodgkinson, W., and A. Coote,  
2349  
Hodgkinson, W., and F., 895  
Hodgkinson, W., and F. Lowndes,  
713, 1059, 1100  
Hodgkinson, W., and J. Young, 1059  
Hodgson, C., 2591  
Hodgson, J., 2698  
Hodson, L., 2724  
Hoeckendorf, P., 2467  
Hoeft, F. v., 144  
Hoeker, H., 2499  
Hoelling, E., 1211, 1219, 1222,  
1271, 1281  
*Hoelt, M., see E Wickwarth*  
Hohmel, 501  
Hochm, E., 281.  
*Hochmel, see Suda*  
Hohmel, 507  
Hohmel, v., 264  
Hochmel, F. v., 243  
Hock, C. van, 2592  
Hoelbling, V., and H. Ditz, 1108  
*Holken, E., see A. Romer.*  
Homburg, R., 86, 2632, 2638, 2650,  
3007  
Hoemcke, M., and H. Berens, 2519  
Hoemg, 213, 2833  
Hoemg, M., 290, 297.  
Hong, M., and W. Fuchs, 664  
Hoemg, M., and S. Schubert, 99,  
123, 133, 182, 201  
Hoemg, M., and J. Spitzer, 281,  
354, 657  
Hontsch & Co., 2401.  
Hopfner, 1892  
Hopfner, A., 1069.  
Hopfner, C., 657, 1303, 1310, 2699.  
Hopfner, K., 2124, 2426.  
Hoering, P., 297  
*Hoerlin, J., see W. Koenigs*  
*Hoermann, O., see C. Liebermann.*  
Hoernes, H., 2579.  
*Hoernstein, F., see C. Paul.*  
*Horth, F., see R. Herzog.*  
*Hoesch, K., see E. Fischer*  
Hoesch & Co., 308.  
Hoevermann, and A. Koch, 1006B.  
Hof, W., 837, 996, 1363.  
Hofer, 213  
Hofer & Co., 2745  
*Hofer, H., see W. Muthmann.*  
Hofer, H., 308  
Hofer, H., and M. Moest, 2435.  
Hoff, van't, *see Van't Hoff.*  
*Hoff & Co. see Internationale Galalith.*

- Hoffa, 2743.  
*Hoffman, A., see H. Godwin.*  
 Hoffman, A., 807, 1025, 1337.  
 Hoffman, A., and W. Parkin, 804.  
 Hoffman, C., 2758.  
 Hoffman, H., 2573, 2585, 2726.  
 Hoffman, J., 2678.  
 Hoffmann, 100, 2782.  
 Hoffmann, A., 961, 1080, 2394, 2402, 2439.  
 Hoffmann, A., G. Kraemer and L. Löwenherz, 2413.  
 Hoffmann, C., 280.  
 Hoffmann, E., and V. Hawse, 1852.  
 Hoffmann, G., 2492.  
 Hoffmann, H., 297, 2560, 2978.  
 Hoffmann, M., 281.  
 Hoffmann, O., 227.  
 Hoffmann, P., 2383, 2627, 2716.  
 Hoffmann, R., 1214.  
 Hoffmann, T., 1035.  
 Hoffmann, W., 440.  
 Hoffmann-La Roche and Co., F., 2772.  
 Hoffmeister, 242.  
 Hoffmeister, W., 2, 124, 182, 238, 297, 326.  
 Hoffsummer, I., 2848, 2859, 2863, 3059.  
 Hoßander, U., 2467.  
*Hofman, A., see H. Buff*  
 Hofman, K., 97.  
 Hofman, P., 1059.  
 Hofmann, 99, 665, 1080, 1343, 1476.  
*Hofmann & Schoetensack, see Chemische Fabrik*  
*Hofmann, A., see H. Buff*  
 Hofmann, A., 17, 710, 894, 1059, 1104, 1375, 1592, 1701, 2448, 2472, 2486, 2505.  
 Hofmann, A., and G. Buckton, 1100.  
 Hofmann, A., and Redwood, 195.  
 Hofmann, A., and K. Reimer, 2474.  
 Hofmann, C., 308, 2664.  
 Hofmann, C., and H. Josephy, 2023.  
 Hofmann, F., and O. Bonhoeffer, 2435.  
 Hofmann, H., 45, 337, 636.  
 Hofmann, K., 2412, 2650, 2772, 3053, 3054.  
 Hofmann, K., and H. Schibsted, 3005.  
 Hofmann, K., and I. Seiler, 2464.  
 Hofmann, L., 1591.  
 Hofmann, P., 1015, 1024, 1217.  
 Hofmann, R., 2686.  
 Hofmeier, J., 336.  
*Hofmeister, V., see W. Ellenberger.*  
 Hofmeister, V., 347.  
 Hofsass, M., 1518.  
 Hofste, M., 664.  
 Hogan, G., 2736, 2738.  
*Hogarth, J., see J. Hannay.*  
 Hogben, 2657, 2671.  
 Hogben, W., 2675, 2758.  
*Hogg, W., see Terell.*  
 Hoggson, S., and G. Pettis, 1630, 1788, 1790, 2668, 2675, 2730, 2731.  
*Hohmann, C., see W. Nernst.*  
 Hohorst, C. von, 1055.  
 Hoitsema, 2324, 2347.  
 Hoitsema, C., 1656, 1658, 1703, 1704, 1832, 2336.  
 Holaubek, M., 297, 454, 2419.  
 Holbling, V., and H. Ditz, 1100, 1122.  
 Holborn and Austin, 1800.  
 Holborn, L., and L. Austin, 671.  
 Holborn, L., and E. Gruneisen, 1034.  
 Holburn, I., and W. Wien, 2498.  
*Holcroft, G., see H. Garrett*  
 Holde, D., 2571.  
 Holdefleiss, 242.  
 Holdefleiss, F., 459.  
 Holden, G., 2736.  
 Holden, H., 451.  
*Holden, J., see E. Warren.*  
 Holden, J., 958, 1313.  
 Holden, J., S. Turton, and J. Barber, 958.  
*Holderer, M., see G. Bertrand*  
 Holdsworth, A., 1081.  
 Holker, 1007, 1008.  
*Holker, E., see A. Romer*  
 Hollander, H., 2467.  
*Holland, B., see F. Holland*  
 Holland, C., 2999.  
 Holland, E. and B., 2588, 2599.  
 Holland, F., and J. Jackson, 226, 3066.  
 Holland, H., 1011.  
 Holland, P., 2825, 2826.  
 Holland, R., 2409.  
 Hollande, A., 2468.  
 Hollande, A., and J. Beauverie, 1776.  
*Hollande, P., see J. Nigro.*  
 Hollands, A., and A. Laundy, 2613, 2690.  
*Hollborn, C., see H. Hamblin.*  
 Holler, H., and E. Pfeffer, 1316.  
 Holley, A., and H. Webb, 955.  
 Holley, C., 2434, 2435, 2444, 2461, 2481, 2572.  
 Holley, C., and J. Weaver, 2464.  
 Holliday, T., 1000.  
 Hollings, A., 2031, 2167, 2168.  
 Hollings, A., G. Jarvis, and G. Bell,

1421.  
 Hollings, H., and I. Cobb, 42.  
 Hollingsworth, F., 2875  
 Hollins, R., and T. Taylor, 568,  
 1875  
 Hollway, J., 1015, 1030, 1075  
 Holmes, C., 2643  
 Holmes, G., 1827  
 Holmes, H., *see* M. Forster  
 Holmes, J., 2436, 2983  
 Holmes, J., and P. Sageman, 2467  
 Holmes, T., 297  
 Holmes, W., *see* A. Smith  
 Holmes, W., 1518.  
 Holroyd, S., 1075  
 Holshauser, W., 1088  
 Holste, A., 441  
 Holt, H., 2697  
 Holt, W., 2695  
 Holt, W., and W. Sims, 711  
 Holter, A., 921  
 Holtkamp, *see* Moller-Holtkamp  
 Holtkamp, F., Moller, and E.  
 Bucholz, 234  
 Holtz, E., 2475  
 Holwech, H., 693  
 Holwech, W., *see* F. Haber  
 Holwech, W., 900, 901, 1261  
 Holwech, W., and F. Koenig, 901.  
 Holzberg, M., 2919  
 Holzmasse-Ges., 3080.  
 Holzstoffwerke Brixem-Pfeffersberg  
 Otto Kurz, A. G., 657  
 Holzverkohlungs-industrie, Aktien  
 Gesellschaft, 209, 664, 2408, 2998,  
 3005  
 Homan, C., 2718.  
 Homann, F., 184, 1624, 1848, 1866  
 Homberger, W., 2680  
 Homerton Manufacturing Co., Ltd.,  
 2662.  
 Homes, C., 2826.  
 Hommel, *see* Sprunzig.  
 Hommel, 2841  
 Hommel, W., *see* F. Kuster.  
 Hommel, W., 1072, 1073, 1078, 1079,  
 1080, 1271, 2841  
 Hommel, W., and H. Durant, 1074.  
 Hommel, W., and the Metals Ex-  
 traction Corporation, 1273  
 Hommell, H., 2791.  
 Homolatsch, 2802.  
 Honeyman, G., 2564.  
 Honeywell, H., 3050  
 Honig, M., 308  
 Honnay, F., and A. Warnant, 2597,  
 2598.  
 Honowsky, B., 3079.  
 Hood, A., 2760.  
 Hood, J., *see* G. Albright  
 Hood, S., 2511  
 Hoofnagle, 849.  
 Hoofnagle, W., 687, 849  
 Hoogewerff, S., and W. Van Dorp  
 2521.  
 Hooker, A., 690  
 Hookham, G., *see* Kynoch, Ltd  
 Hooman, T., and J. Maliszewski,  
 2750, 2799, 2827, 2919  
 Hooper, G., 2857  
 Hoover, A., 2566  
 Hoover, C., *see* T. Richards  
 Hope, J., 226  
 Hope, W., 2716  
 Hopewell, C., 2556  
 Hopkins, 279P  
 Hopkins, C., 671  
 Hopkins, C., Smith, and East, 389.  
 Hopkins, J., 2695  
 Hopkins, M., and C. Barnett, 2555.  
 Hopkins, P., 1045  
 Hopkinson, W., 2905  
 Hopp, G., 2772  
 Hoppe, F., 2582  
 Hoppe Seyler, F., 44, 45, 197, 234,  
 242, 255, 325, 339, 390, 520, 671.  
 Hopwood, J., 2891  
 Horbaczewski, 2411, 2423  
 Horgan, S., 2910  
 Horlacher, T., *see* P. Walden.  
 Horn, 2751, 2901.  
 Horn, A., 2772  
 Horn, F., 2310, 2692, 2761, 2772.  
 Hornby, D., 2835  
 Horne, *see* Hoyt-Horne  
 Horne, W., 2413  
 Hornell, J., 2720  
 Horney, O., 1979  
 Hornich, W., 2705  
 Hornig, E., 2661.  
 Hornsey, 2837, 2841, 2843  
 Hornsey, J., 2826, 2866.  
 Hornstein, N., 2577.  
 Hornung and Scheibner, 459.  
 Hornung, G., *see* G. Hertel.  
 Horrocks, W., *see* W. Crompton  
 Horsburgh, D., 226.  
 Horsman, V., 2895  
 Horst, E., *see* A. Shirley.  
 Horteloup, G., 297, 328, 1873, 1878.  
 Horvat, V., 424  
 Hosaeus, H., 2772  
 Hoste, G., *see* C. Lundholm.  
 Hosie, G., 2983.  
 Hoskins, E., 2919  
 Hoskins, W., 297, 308, 2405.  
 Hotchkiss, 2929.  
 Hotchkiss, B., 1598, 2978.

- Hote, see L'Hote.*  
 Hothersall, J., 2609.  
*Hottenroth, V., see Zellstoffabrik Waldhof.*  
 Hottenroth, V., 1040, 2302, 3067.  
 Hottenroth, V., Wentzel, E. Wolf, H. Drehschmidt and Wirtz, 1040.  
 Houben and Wooldridge, 2675  
 Houben, J., 2525, 2539  
 Houben, J., and H. Doescher, 2534.  
*Houbigant, A., see L. Obert.*  
 Houdard, M., and J. Vasseur, 2555  
 Hough, A., 750, 808, 809, 810, 829, 830, 833, 837, 1831, 1832, 1833.  
 Hough, A., W. Savage, and D. Van Marle, 1931.  
 Hough, E., 2904.  
 Hough, J., 291.  
 Hough, W., 297, 308, 2739  
 Houghton, 292.  
 Houghton, E., and T. Aldrich, 2444.  
 Houghton, G., & Son, 2916.  
 Houghton, T., 2695.  
 Houlgrave, 2837.  
 House, H., 2601  
 Houseau, A., 736  
 Housel, J., 2739.  
 Houseman, C., 724, 1004  
 Houseman, P., 2511.  
*Houskeeper, W., see H. Madden*  
*Houston, see British Thomson Houston Co.*  
 Hout, H. van den, 2603  
 Houze, 1302.  
 Houzeau, A., 671.  
 Hove, T. van, 2436  
*Howe, R., see B. Johnsen*  
 How, W., 2736, 2739.  
 Howard, 2837.  
 Howard and Clark, 2831  
 Howard, B., and O. Chuck, 963  
 Howard, D., 2473.  
 Howard, F., 2835.  
 Howard, G., 297.  
 Howard, H., 791, 813, 1072, 1086, 1088, 1090, 1108, 1110, 1229, 1330, 1366, 1391, 1549, 3002.  
 Howard, H., and F. Stantial, 1075.  
 Howard, W., 2818.  
 Howards, 2836.  
 Howe, H., 2986.  
 Howe, J., and S. Hammer, 1015.  
*Howell, see Crompton.*  
*Howell, see Winkler.*  
 Howell, 2901.  
 Howell, K., 2772  
 Howell, S., 2983.  
*Howkins, J., see Veluril Co.*  
 Howl, E., and F. Perry, 1300.  
*Howland, see Pulser.*  
 Howles, E., 671.  
*Howles, F., see E. Scott.*  
 Howles, F., 693, 705, 847.  
 Howles, F., and A. McDougall, 705.  
*Howles, W., see A. MacDougall*  
 Howlett, C., 2615.  
 Hoy, T., 2761.  
 Hoyermann, H., 671, 898, 899  
*Hoyle, B., see W. Cramp*  
 Hoyne, J., 102.  
*Hoyt, see Umpherson.*  
 Hoyt, 2092.  
 Hoyt, A., 456.  
 Hoyt, E., 956  
 Hoyt, W., 2736  
 Hoyt, W., and W. Gaven, 2736  
 Hoyt-Horne, 2092  
 Hrdliczka, 2857.  
 Hrdliczka-Sizar, F., 2852, 2853.  
 Hubbard, J., 2329, 2398, 2998.  
 Hubbell, V., 2724.  
 Huber, C., 2678  
 Huber, G., 2695  
*Huber, L., see M. Scholtz.*  
 Hubert & Co., and J. Thiery, 2705.  
 Hubert, J., 2854, 2905.  
 Huck, 459  
 Huck, A., and L. Fischer, 2579, 2589.  
 Huck, A., and S. Fischer, 2863  
 Hudson, 2821  
*Hudson, C., see B. La Forge.*  
*Hudson, C., see F. La Forge.*  
 Hudson, C., 657  
 Hudson, C., and D. Brauns, 657.  
 Hudson, C., and J. Dale, 657.  
 Hudson, C., and T. Harding, 205, 297, 300  
 Hudson, C., and J. Johnson, 184, 657  
 Hudson, C., and H. Parker, 657  
 Hudson, C., and H. Sawyer, 1862.  
*Hudson, E., see C. Mabery.*  
 Hudson, E., and H. Merriam, 297, 2410.  
 Hudson, F., 1559.  
 Hudson, H., 2742.  
 Hudson, W., 2982  
*Hue, O., see A. Eibner.*  
 Hubl, A. v., 2823, 2837, 2843, 2845, 2846, 2869, 2871, 2872, 2873, 2874, 2875.  
 Huebner, 66.  
 Huebner, G., 2251, 2597, 2699, 2716, 2982, 3076, 3081.  
*Huebner, J., see Manchester Oxide Co.*  
*Huebner, J., see W. Mather.*  
 Huebner, J., 159, 230, 232, 233,

- 346, 347, 379, 2593, 2632, 2638,  
2641, 2647, 2650, 2982, 3047  
Hubner, J., and E. Knecht, 53  
Hubner, J., and W. Pope, 68, 230,  
508, 530, 1760.  
Hubner, P., 2624  
Hubner, R., *see* Bleachers' Association, Limited  
Hubner, R., 1075  
Huebner, R., and J. H. Riley & Co.,  
232  
Hue, G., 2894, 2898  
Hufner, G., 671.  
Huehn, F., *see* J. Koenig.  
Huelsenberg, *see* Leinbass.  
Hunefeld, L., 2470  
Huncke, *see* Maschinbau Ges. Martini & Huncke  
Huncke, 2560  
Hunerbeim, F., 2579  
Huppner, 1210  
Huerre, R., 252  
Hutter, J., 240, 2975  
Hutter, J., 1623, 1803  
Huff, W., 1023, 1033  
Hufner, G., 710  
Hughes, 297, 2820  
Hughes, F., *see* T. Dymond  
Hughes, G., 2740  
Hughes, J., 297, 1076, 1230, 1367,  
2819, 2820, 2832  
Hughes, J., and J. Hitchcock, 1391  
Hughes, T., 2492, 2692  
Hughes, W., 1075  
Hugoneng, L., 2475, 2490  
Hugouneng, L., and A. Morel, 202  
Huguennin, *see* Durand, Huguennin & Co.  
Huhn, F., *see* J. Konig  
Huish, C., 2740  
Huizinga, D., 716  
Hulbert, H., *see* C. Galaine  
Hulett, G., 2514  
Hulett, K., 1281  
Hulett, K., and Chandler, Ltd.,  
S. Hersey and E. Blake, 1281.  
Hull, G., 2564.  
Hultman, G., 1006B  
Hulton, H., *see* J. Baker  
Human, A., and G. Cross, 961  
Humann, E., 2437.  
Humboldt, 490.  
Humboldt Engineering Co., 1071.  
Humburg, O., 2386.  
Humnicki, V., *see* A. Bogajawlenski.  
Humphrey, 2824  
Humphrey, A., 2751.  
Humphrey, H., 448  
Humphrey, H., and W. Brown, 2708.  
Humphrey, I., *see* H. Essex.  
Humphrey, S., 2801, 2807.  
Humphreys, J., 2363.  
Humphries, H., *see* R. Dodd  
Humphries, H., 1063, 1075, 1091,  
1093  
Humphris, J., *see* J. Freestone  
Hunaeus, P., 2678, 2692, 2694, 2698,  
2723, 2726, 2916  
Huncoast Plastic Brick & Terra Cotta  
Co., *see* W. Green  
Hundhausen, J., 453, 462.  
Hungarian Chardonnay Works, 2632.  
Hungerbuhler, J., 459  
Hunsalt, P., *see* K. Stephan  
Hunt, *see* Chance  
Hunt, D., 1063  
Hunt, E., *see* C. Jackson  
Hunt, E., *see* C. Rothwell Jackson  
Hunt, E., and W. Gidden, 1031  
Hunt, F., 2678  
Hunt, H., 2707  
Hunt, N., 2710  
Hunt, R., 2677, 2738, 2819, 2833,  
2915  
Hunt, T., 677  
Hunt, W., 1011, 1101, 1116, 1222,  
1343, 2706, 2787  
Hunter, C., 2593, 2963  
Hunter, J., 988, 2611, 2624, 2648,  
2765  
Hunter, M., 710, 712  
Hunter, M., and J. Clark, 2678  
Hunter, R., 2707.  
Huntington, Heberlein & Co., 1220  
Huntington, H., 2795  
Huntington, T., and F. Heberlein,  
1059, 1081  
Huntington, W., 297, 2787.  
Huntley, J., *see* G. Rutterfor & Son.  
Huntrods, J., 2905  
Hupfeld, H., *see* E. Schnauffer.  
Huppert, K., 428  
Hurd, F., 1629, 2980  
Hurford, O., 685, 686, 690.  
Hurion, A., *see* F. Parmentier.  
Hurst, J., and H. Dowler, 2705.  
Hurt, G., 1003, 1076  
Hurt, H., 308  
Hurter, F., *see* J. Brock  
Hurter, F., *see* E. Carey  
Hurter, F., *see* H. Deacon.  
Hurter, F., 1241, 1247, 1249, 1261,  
1276, 2396.  
Hurty, J., 454  
Hurwitz, S., 2601  
Husemann and Hülger, 184.  
Husher, 2809  
Husnik, J., 2875, 2915.



- Huss, E., and F. Kummell, 2558.  
 Hussak, E., 1015.  
 Husson, C., 436.  
 Hutchins, C., 1762, 2564  
 Hutchins, E., 308.  
 Hutchins, T., L. Hargreaves, and A. Dunningham, 1009.  
*Hutchinson, see Societe anon. des Etablissements, Hutchinson.*  
 Hutchinson, A., 2602, 2772.  
 Hutchinson, C., 671  
 Hutchinson, F., 2610, 2696.  
 Hutchinson, H., 1122  
 Hutchinson, H., and J. Clayton, 343.  
 Hutchinson, H., and N. Miller, 671.  
 Hutchinson, J., 2847, 2901.  
 Hutchinson, T., and United Railway and Trading Co., 27.  
 Hutchison, R., 297, 2726  
 Huth, G., and J. Bertram and Son, Ltd., 297.  
 Hutin, A., 671, 1042, 1225, 1268, 1372, 2761.  
 Hutin, A., and Maurecourt, 1313.  
 Hutin, A., and G. Pasque, 1372  
 Hutinet, J., 2859  
 Hutinet, J., and P. Lamy, 2848, 2859, 2863.  
*Huttner, F., see W. Mancho.*  
 Hutton, 1361.  
*Hutton, W., see J. Russell.*  
 Huwart, E., 2391, 2624  
 Hviid, L., 2761  
 Hyatt, 1854, 1875, 2033, 2041, 2042, 2043, 2045, 2510, 2665, 2666, 2668, 2670, 2718.  
 Hyatt Bros., 2656, 2664  
 Hyatt Manufacturing Co., 2665.  
*Hyatt, I., see J. Hyatt*  
 Hyatt, I., 2677, 2713, 2718, 2719, 2720.  
 Hyatt, I., and J., 2672, 2677, 2688, 2697.  
 Hyatt, I., and J., and J. Perkins, 2738.  
*Hyatt, J., see I. Hyatt.*  
*Hyatt, J., see M. Lefterts*  
*Hyatt, J., see C. Lockwood*  
 Hyatt, J., 531, 2038, 2039, 2069, 2151, 2592, 2658, 2663, 2665, 2672, 2673, 2677, 2681, 2682, 2686, 2701, 2709, 2714, 2715, 2716, 2719, 2722, 2729, 2730, 2745, 2764.  
 Hyatt, J., and D. Blake, 2719.  
 Hyatt, J., and C. Burroughs, 2664, 2686.  
 Hyatt, J., and J. Everding, 2664  
 Hyatt, J., and I., 2039, 2383, 2664, 2686, 2697, 2706, 2757.  
 Hyatt J., and J. Jarvis, 2076.  
 Hyatt, J., and C. Lockwood, 2714.  
 Hyatt, J., C. Lockwood, and J. Stevens, 2719  
 Hyatt, J., and F. Pool, 1413, 1421, 2039.  
 Hyatt, J., F. Pool, J. Everding, J. Stevens, and W. Wood, 1421, 2039.  
 Hyatt, J., J. Stevens, and J. Everding, 2670  
 Hyatt, J., W. Wood, and J. Stevens, 2639.  
 Hyatt, W., and F. Fellowes, 804.  
 Hyde, H., 2412  
 Hyde, J., 1023  
 Hyer, J., 2704  
 Hygen, T., 923  
 Hyleen, O., 2513  
 Hymans, L., 2717  
 Hymmen, O., 2891  
*Hyvelin, J., see L. Bouillette.*  
*Ibarra-Loring, E., see H. Chabaner.*  
 Ibis, 740, 785  
 Ichenhauser, E., 3043  
 Ide, 2783  
 Igersheimer, J., and F. Verzar, 2411.  
 Ihl, 242, 243  
*Ihl, A., see J. Wiesner*  
 Ihl, A., 197, 262, 263, 297.  
 Ihl, A., E. and H. Erdman, 262  
 Ihle, R., 953  
*Ikeda, B., see S. Keimatsu*  
 Iles, C., 2678, 2712.  
*Iles, M., see C. Fahlberg*  
 Ilges, R., 2415, 2475  
 Ilisch, F., 2793  
 Illingsworth, E., 1092  
*Illingsworth, T., see P. Spence.*  
 Illingsworth, W., 2761.  
*Ilosva, N., see L. Ilosvay.*  
 Ilosvay, 2335  
 Ilosvay, L., and N. Ilosva, 671.  
 Ilosvay, L., 1015.  
 Imbert, A., 1081.  
 Imbert, F., 1036.  
 Imbert, G., and W. Kraft, 2418.  
 Imbert, M., 2747.  
 Imeary, R., and T. Richardson, 1011.  
 Imhaus, E., 297.  
*Inkhauser, A., see K. Aucters.*  
*Imison, C., see J. Raschen*  
 Immendorff, H., 2526.  
 Immendorff, H., and H. Kappen, 921, 929, 933, 935, 1006B, 2964.  
 Imperiali, R., 2945.  
*Improved Process Manufacturing Co.,*

- see A. Murdoch.*  
 Improved Process Manufacturing Company, 456.  
*Indra, A., see E. Donath.*  
 Industriegas-Gesellschaft fuer Sauerstoff und Stickstoff-Anlagen, 687, 690, 1004.  
 Ingham, L., 735.  
 Inglis, 2808.  
 Inglis, J., 77, 1247, 2854.  
 Inglis, J., and L. Knight, 2502.  
 Ingram, A., 2627.  
*Inhasz, P., see H. Singmund.*  
 Innerhofer, A., 1275.  
*Innes, A., see E. Berl.*  
 Innes, R., 1037.  
 Inoue, 826.  
*Inoue, R., see T. Takeuchi.*  
*Institute for Physical and Political Geography, see C. Mackenzie.*  
 International Cellulose Company, 657.  
 Internationale Cellulose-Ester Gesellschaft, 1909, 2671, 3008, 3012, 3017, 3047, 3059.  
 Internationale Cellulose Ester Gesellschaft and E. Bronnert, 3025.  
 Internationale Galalith-Gesellschaft Hoff and Co., 2761.  
 International Smokeless Powder & Chemical Co., 1724, 2111, 2940, 2957.  
 International Smokeless Powder and Dynamite Co., 1806, 2252.  
 International Spiritus Industrie Gesellschaft m. b. H., 2417.  
 International Vacuum-Eismaschinenverein, 1360, 1383.  
 Internationale Wasserstoff Aktien Gesellschaft, 1310.  
 Inwald J., Aktien Gesellschaft, 2632.  
 Ioco Proofing Co., Nuttall, and Vickers, 2772.  
 Ionides, S., 1399.  
*Iooss, P., see C. Girard.*  
*Ipatjeff, W., see W. Ipatjew.*  
 Ipatjew, W., 2430, 2445, 2459.  
 Ipatjew, W., and N. Matow, 2535.  
 Ipatjew, W., and W. Sdzitowecy, 2459.  
 Ipatjew, W., and V. Wittorff, 2459.  
 Ippendorff, A., 2993.  
 Ippers, J., 2910.  
 Ireland, G., and H. St. Sugden, 684, 1006A.  
 Irvin, D., 671, 725, 729.  
 Irvine, C., and R. Slater, 1299.  
*Irvine, J., see T. Kerfoot.*  
*Irving, S., see D. Bently.*  
 Irving, S., 2603.  
 Irwin, J., 297.  
 Irwin, T., 2122.  
*Isaac, J., see C. Cross.*  
*Isachsen, see Wilcenus.*  
 Isambert, F., 1059.  
 Isart and Frezon, 117.  
*Isbert, A., see A. Stutzer.*  
 Iscovesco, H., 2703, 2742.  
 Isermann, S., 3047, 3048.  
*Isgrig, J., see W. Smith.*  
 Isherwood, O., 226.  
 Isherwood, P., 78.  
 Ishida, M., and B. Tollens, 367.  
 Ishiwara, T., 672, 935.  
*Ising, H., see F. Klute.*  
 Ising, H., 1207.  
*Ising, I., see H. Petersen.*  
 Island, J., 685, 697, 709, 849.  
 Island, J., and E. Coleman, 849, 1005.  
*Isler, M., see E. Berl.*  
*Isler, M., see G. Lunge.*  
 Israel, L., 1011, 1206.  
*Issleib, M., see L. Knoche.*  
 Istomin, N., 226.  
 Istrati, C., and L. Edeleanu, 183.  
 Istrati, C., and A. Ostrogovich, 243.  
 Istrati, C., and A. Zaharia, 2515.  
 Ita, G., 3005.  
 Itala Film, 2805.  
 Itala Film Barriera di Casale, 2749.  
 Itala Film Ing. Sciamengo & Pas-trone, 2808.  
 Itane, S., 2589.  
 Itasse, G., 2919.  
 Iterson, C. van, 343.  
*Ives, see Hess Ives Co.*  
 Ives, F., 2870, 2882, 2883.  
 Ives, H., 2883, 2897.  
*Ivor, see Mac Ivor.*  
 Iwanow, W., 672, 853, 964.  
 Iwanowsky, 197.  
 Izidore, A., and M. Biscons, 1286.  
 Jakob, 2854.  
*Jahon, A., see H. Frajas.*  
 Jabs, A., 308.  
 Jabulowsky, E., and A. Bourquin, 2906.  
 Jack, J., 2583, 2604, 2790.  
 Jack, W., and F. Greening, 2611.  
*Jackson, see Bently.*  
*Jackson, see Mellersh-Jackson.*  
*Jackson, see C. L. Rothwell-Jackson.*  
 Jackson, C., 226, 227.  
 Jackson, C., and J. Derby, 2436.  
 Jackson, C., and E. Hunt, 227, 3066.  
 Jackson, C., and A. Menke, 2526.  
 Jackson, D., 1011, 1291.

- Jackson, E., 1247, 2650.  
*Jackson, H.*, see *H. Fenton*.  
 Jackson, H., 269, 297.  
*Jackson, J.*, see *F. Holland*.  
 Jackson, J., 944.  
 Jackson, R., 2773.  
 Jackson, T., 1306.  
 Jacob, C., 2593, 2611, 2750.  
 Jacob, R., 2722, 2743.  
 Jacob, H., 2624, 2638.  
 Jacober, C., and A. Rabourdin, 2637, 2643.  
*Jacobs, A.*, see *A. Muller-Jacobs*.  
 Jacobs, C., 927, 935, 1111, 1123, 1302, 2395, 2726.  
*Jacobs, L.*, see *W. Gibson*.  
 Jacobs, P., 1235.  
*Jacobsen*, see *A. Juckenack*.  
 Jacobsen, 100, 2910.  
 Jacobsen, E., 1015.  
*Jacobsen, K.*, see *F. Ehrlich*.  
 Jacobson, A., and I. McOmber, 2897.  
 Jacobson, J., 2588, 2705.  
 Jacobson, N., 2512.  
*Jacoby, H.*, see *F. Foerster*.  
 Jacoby, M., 421, 484.  
 Jacoby, M., W. v. Kaufmann, A. Lewite, and H. Sallinger, 664.  
*Jacoby, R.*, see *N. Caro*.  
 Jacque, M., 1710, 1802, 2324, 2330, 2348, 2349.  
 Jacquelain, V., 392.  
*Jacquement*, see *Teissiere*.  
 Jacquemin, E., 1893.  
*Jacquemin, H.*, see *L. Leduc*.  
 Jacquemin, P., and R. Heraud, 2541, 2764.  
 Jacquierod, A., and A. Pintza, 1059.  
 Jacquierod, A., and O. Scheuer, 712.  
 Jacques, S., 298.  
 Jacquet, 3007.  
*Jacquin, J.*, see *L. Richard*.  
 Jackel, A., 2658, 2756.  
*Jaeger*, see *Wassermann*.  
 Jaeger, 2815.  
 Jäger, E., 2773.  
*Jaeger, F.*, see *O. Martin*.  
 Jaeger, F., 183, C57.  
 Jaeger, P., 2593.  
 Jäger, P., and Sohne, 2678, 2683.  
 Jaeger, R., and E. Junger, 238.  
 Jaeger-Koenkendorf, W., 452.  
 Jaffe, 2743.  
 Jaffe, M., 2910.  
*Jagellowitzsch, W.*, see *A. Saposhnikoff*.  
 Jagor, 2834.  
 Jahn, C., 1440, 1464, 1465.  
 Jahn, E., 1130.  
 Jahn, F. de, 829, 986, 1005, 1006, 1006A, 3001.  
*Jahn, H.*, see *H. Landolt*.  
 Jahn, H., 2499, 2502.  
 Jahn, H., and G. Moller, 2386, 2442, 2455, 2469.  
 Jahn, W., 2430.  
 Jahne, L., 389, 1077.  
 Jaine, W., 2600.  
 Jakouchkine, I., 672.  
 Jakova-Merturi, 686.  
 Jakova-Merturi, G., and Ges. Lindes Eismaschinen Aktien Gesellschaft, 686.  
 Jaksch, A., 1809.  
*Jakubowski, W.*, see *J. Boguski*.  
 Jaloustre, I., Z. Kheifetz and M. Warchavsky, 2778.  
*Jalquin, J.*, see *L. Richard*.  
*James*, see *Alexander*.  
 Jamieson, G., 1333, 1335.  
 James, G., W. Vint, and H. Alexander, 687.  
 James, H., 2736.  
 James, H., and A. Scott, 2907.  
 James, R., 2750.  
*James, T.*, see *W. James*.  
 James, W., and T., 2406.  
 James and Jones, 672.  
 Jamieson, G., 1333, 1335.  
 Jamieson, T., 1015, 1097.  
 Janda, F., 1033.  
 Jander, H., 1392.  
 Jandrier, E., 5, 129, 175.  
 Jane, 2826, 2829, 2886.  
*Jancsek, G.*, see *A. Lieben*.  
 Janke, A., 2425.  
 Jankowski, S., 2563.  
 Janks, P., 2683.  
 Jannasch, P., 1055, 1056.  
 Jannasch, P., and K. Aschoff, 1056.  
 Jannasch, P., and O. Heidenreich, 1056.  
 Jannasch, P., and H. Lehnert, 1056.  
*Janneck, J.*, see *J. Meyer*.  
 Jannin, 2743.  
 Jannin, L., 2643, 2647, 2678, 2685, 2745, 2747, 2761.  
 Jannopoulos, S., 2303, 2336.  
 Janousek, A., 2492.  
 Japp, F., and J. Raschen, 2476.  
*Jaquemin, H.*, see *L. Leduc*.  
 Jaquerod, A., and S. Bogdan, 678, 692.  
 Jaquerod, A., and O. Scheuer, 692.  
 Jaques, E., 2866.  
*Jaracko*, see *Povarsky-Jaracko*.  
 Jardine, J., 298.  
 Jardine, J., and F. Nelson, 298.

- Jaresch, J., see M. Jeschek.*  
*Jarmain, G., see E. Chambers.*  
*Jarmain, G., and J. Taylor, 2692.*  
*Jarman, 2861.*  
*Jarman, A., 2678, 2747, 2854, 2868, 2904, 2905, 2919.*  
*Jaroschenko, A., 2480.*  
*Jarvis, G., see A. Hollings.*  
*Jarvis, J., see J. Hyatt.*  
*Jarvis, J., see F. Jones.*  
*Jarvis, J., see E. Kipper.*  
*Jarvis, J., 1635, 1931, 2385, 2659, 2683, 2685, 2707, 2745, 3028, 3049.*  
*Jasper, M., 2560.*  
*Jassen, see W. Kette-Jassen.*  
*Jasset, E., C. Bernadac and F. Kowachiche, 2589.*  
*Jastrzebski, P., 2864.*  
*Jaubert, G., 687, 689.*  
*Jay, R., see H. MacFarland.*  
*Jay, S., & Co., 2416.*  
*Jean, 1572.*  
*Jean, J., & Co., 462.*  
*Jean, J., and Co., and G. Raverat, 2417.*  
*Jean, J., and J. Gougard, 2761.*  
*Jean, J., & Co., see also Societe J. Jean & Co.*  
*Jeanjean, F., 2471.*  
*Jeanmaire, P., 60, 161, 226, 227, 3066.*  
*Jeannin, 2747.*  
*Jeanningros, G., 2592.*  
*Jeanrenaud, 2808, 2813, 2826, 2921.*  
*Jeanrenaud, M., 2901.*  
*Jeans, J., 710, 715.*  
*Jeantaud, C., 2701.*  
*Jearns, H., 226.*  
*Jebb, J., 456.*  
*Jebb, T., and A. Bennett, 456.*  
*Jebb, T., and W., 456.*  
*Jebb, W., see T. Jebb.*  
*Jebb, W., 456.*  
*Jedlica, F., 308.*  
*Jedlikca, J., 2395.*  
*Jeffers, E., see L. Thorne.*  
*Jeffery, F., 672, 952.*  
*Jeffries, J., 448.*  
*Jeffs, J., 2707.*  
*Jelinek, O., 2782.*  
*Jellicoe, R., see C. King.*  
*Jelinek, K., 672, 712, 715, 899.*  
*Jelinek, K., and Lehmann, 870.*  
*Jencic, S., see M. Samec.*  
*Jenett, M., and M. List, 3047.*  
*Jenkins, C., 2686, 2750.*  
*Jenkins, E., see T. Taylor.*  
*Jenkins, H., see R. Parsons.*  
*Jenkins, J., see R. Parsons.*  
*Jenkins, R., see J. Macnab.*  
*Jenkinson, B., see R. Crompton.*  
*Jenks, see Betan.*  
*Jenks, H., 1073.*  
*Jenks, R., see C. Cross.*  
*Jenne, 2602.*  
*Jennens, W., 2712.*  
*Jenner, A., and C., 2632, 2642.*  
*Jenner, C., see A. Jenner.*  
*Jenney, see Jenny.*  
*Jennings, 99, 2600, 2820, 2832, 2836, 2868.*  
*Jennison, J., see A. Baker.\**  
*Jenny, F., 2624.*  
*Jensch, E., 1077, 1080, 1086, 2641.*  
*Jensen, A., 2747.*  
*Jensen, F., 1423.*  
*Jensen, O., see E. Bergve.*  
*Jensen, O., 694, 699, 986, 987, 988, 1517.*  
*Jensen and Son, 298.*  
*Jenssen, G., 657.*  
*Jentgen, H., 128, 145, 147, 375, 1905, 2627, 2647, 2650, 2652, 3064.*  
*Jentsch, S., 298.*  
*Jentys, E., 403.*  
*Jerden, D., see W. Bone.*  
*Jernberg, A., 308, 657.*  
*Jerne, H., 2579, 2692, 2755, 2895.*  
*Jerome, W., 1015.*  
*Jerosch, H., see Mertens & Co.*  
*Jerrard, J., 2726.*  
*Jeschek, M., and J. Jaresch, 2964, 2965.*  
*Jesmond, Cycle Company, Ltd., see J. Moore.*  
*Jessen, G., 392.*  
*Jesson, see Jessen.*  
*Jetter, E., 2601, 2620, 2720.*  
*Jeufrain, 2835.*  
*Jeune, F., 2954.*  
*Jevons, W., 672, 686.*  
*Jewell, see Munroe-Jewell.*  
*Jewell, 2809.*  
*Jewett, T., 1635.*  
*Jewson, F., 480.*  
*Jirotka, B., see W. Benso.*  
*Jirotka, B., 298.*  
*Joannis, A., 710, 712.*  
*Job, A., and E. Tomlinson, 2706.*  
*Jobbins, 2993.*  
*Jodlbauer, M., 2318.*  
*Johannason, E., 2780.*  
*Johansen, Z., see B. Hansen.*  
*Joh, K., 2398.*  
*John, 2.*  
*John, J., 1015.*  
*Johns, C., see A. Viehoever.*  
*Johnsen, B., 298, 617.*  
*Johrsen, B., and R. Hovey, 274, 364.*

- Johnson, 2, 238, 242, 292, 2830.  
 Johnson-Borland, 2972.  
 Johnson, Brown, Tulley and Werge, 2817.  
 Johnson & Matthey, 1364, 1365.  
 Johnson, A., 1232, 1251, 1292, 1302, 2841, 2845, 2851.  
 Johnson, C., *see* R. Calvert.  
 Johnson, D., *see* W. Reid.  
 Johnson, D., 1635, 1897, 2943, 2945.  
 Johnson, F., 227, 853, 1056, 1075.  
 Johnson, G., 927, 945, 2914.  
 Johnson, H., 479, 2587.  
 Johnson, J., *see* C. Hudson.  
 Johnson, J., 298, 927, 1011, 2410, 2861, 2864, 2993, 3066.  
 Johnson, R., 453, 2678, 2730, 2741.  
 Johnson, R., *see* O. Sarcny.  
 Johnson, S., 1023, 2428, 2446, 2471.  
 Johnson, T., and H. Guest, 2465.  
 Johnson, T., and A. Hill, 1870.  
 Johnson, T., A. Hill, and L. O'Hara, 1871, 1881.  
 Johnson, W., 298, 1080, 1291, 1292, 1302.  
 Johnston, A., *see* W. Rouse.  
 Johnston, A., 2725.  
 Johnston, A., and L. Dow, 1598, 1887, 2573, 2947, 2948.  
 Johnston, B., 806.  
 Johnston, G., 484, 672, 2620, 2621.  
 Johnston, J., 800, 1600, 1768, 2750, 2799, 2843.  
 Johnston, W., 2534.  
 Johnstone, D., 714.  
 Johnstone, E., *see* T. Caldwell.  
 Jolibois, P., and A. Sanfourche, 694.  
 Jolicard, E., 944.  
 Joliot, P., 92, 1879, 2020, 2639, 2650, 3072.  
 Jolivet, *see* Pelet-Jolivet.  
 Jolles, M., and L. Lilienfeld, 2755, 2859.  
 Jolles, O., *see* J. Herbabny.  
 Jolley, A., *see* W. Thomas.  
 Jollinger, 672.  
 Jolliot, *see* Joliot.  
 Jolly, P., 672, 710.  
 Jollyman, W., *see* W. Pakes.  
 Joly, E., 2612.  
 Jolyet, F., and T. Blanche, 710.  
 Jonas, 2871.  
 Jonas, R., *see* E. Briner.  
 Jones, *see* James.  
 Jones A., *see* A. Wichelt.  
 Jones, A., 2837, 3005.  
 Jones, B., 672, 717.  
 Jones, C., *see* E. Pearson.  
 Jones, C., *see* A. Viehoever.  
 Jones, C., 672, 1004, 1006A.  
 Jones, D., *see* K. Orton.  
 Jones, D., 2394.  
 Jones, E., 298, 1010.  
 Jones, F., *see* J. Jones.  
 Jones, F., 644, 1015, 1318, 2389, 2926, 2952, 2957, 2985, 2986.  
 Jones, F., and J. Jarvis, 2688.  
 Jones, F., and G., 2581.  
 Jones, G., 1004, 2408, 2410, 2978.  
 Jones, G., and V. Allison, 3023.  
 Jones, G., J. Capps, and S. Katz, 1098.  
 Jones, G., and P. Suarez, 684.  
 Jones, H., *see* H. Sefton-Jones.  
 Jones, H., 1000, 1390, 2403, 2432, 2436.  
 Jones, H., and E. Bingham, 1722.  
 Jones, H., and F. Getman, 2404.  
 Jones, H., and C. Lindsay, 2404, 2409, 2435.  
 Jones, J., and F., 2611.  
 Jones, L., *see* T. Thorpe.  
 Jones, L., 899, 1063, 1073, 1074, 1081, 2736.  
 Jones, L., D. Morton, and G. Terziev, 897.  
 Jones, L., D. Morton, G. Terziev, and Smet Solvay Co., 943.  
 Jones, L., and C. Parsons, 899, 1005.  
 Jones, N., 2706.  
 Jones, O., 462, 1110.  
 Jones, P., *see* J. Henderson.  
 Jones, P., 1034.  
 Jones, S., *see* L. Baumann.  
 Jones, S., 228, 234.  
 Jones, T., 1309, 2993.  
 Jones, T., and W. Tasker, 2699.  
 Jones, W., *see* J. Hewitt.  
 Jones, W., 1088, 2401, 2603, 2773.  
 Ionescu, C., *see* C. Demetriade.  
 Jong, D. de, 1334.  
 Jonge, A., 1359, 2590, 2694.  
 Joquerod, A., and S. Bogdan, 710.  
 Joravko, *see* Pokorsky-Joravko.  
 Jordan, 2695, 2780, 2782, 2783.  
 Jordan, E., 2678.  
 Jordan, G., 2413.  
 Jordan, H., 2784.  
 Jordan, R., 958, 1313.  
 Jorce, H., 2882.  
 Jorgensen, H., 2722.  
 Jorissen, A., 2474.  
 Jorissen, W., 85, 1311.  
 Joscelyn, N., 2835.  
 Joseph, A., and W. Rae, 2421.  
 Joseph, L., 2601.  
 Josephsen, E., and H. Schwarz, 2673.  
 Josephson, *see* Copelevitz-Josephson.

- Josephson, E., 2755, 2756.  
*Josephy, H., see C. Hofmann.*  
 Joslin, L., 2758.  
 Joss, J., 2470.  
*Jost, A., see Cadoret.*  
 Jost, F., 672.  
 Josz, C., 2690, 2744, 2745, 2747.  
 Jouas, M., M. Desmonts, L. Deglagny and L. Dubosc, 2420, 2994.  
 Joubert, J., 1015.  
 Joubert, F., 2906.  
 Joucla, H., 418.  
*Jouet, see Davanne.*  
 Jouet, 2825.  
*Jougla, see Etablissements Lumière, etc.*  
 Jougla, L. du Hauron and R. de Bercegol, 2879.  
*Jougla, J., see Soc. Anon. Plaques Pellicules et Papiers, etc.*  
 Jougla, J., 2879.  
 Jougla, M., 2877.  
 Joulin, L., 672.  
 Jounioux, 2517.  
 Jourdain, 2823.  
 Jourdain, P., 2883.  
 Journoud, 2917.  
 Journoud, J., 2750, 2888.  
 Jouve, A., 298, 1335, 1358.  
 Jouveau-Dubreuil, J., 1000.  
*Jovinot, P., see A. Koehler.*  
 Joy, 1619.  
*Joyce, C., see J. Crane.*  
*Joyce, C., see F. Hearsey.*  
 Joyce, C., 2666.  
 Joyce, C., and H. La Tourette, 2309.  
 Joyce, F., 1590.  
 Joyce, J., 1815.  
*Juckenack, see Heffter.*  
 Juckenack, A., H. Prause, Griebel, Jacobsen and Gaza, 2411.  
 Judd, J., 1016.  
*Judson, E., see W. May.*  
 Judson, E., 1625, 1803.  
 Juel, J., and E. Ryan, 298.  
 Jürgensen, F., F. Niesz and G. Gumbel, 308.  
 Juergensen, J., 281.  
 Juilhed, B., 2826.  
 Juilhet, 2807.  
 Juilhet, M., 2807.  
 Julich, B., 1732.  
 Julius, W., 1761.  
 Jullian, H., 2716.  
 Jullioon, J., 1010, 1100.  
*Jumau, L., see J. Arnoult.*  
 Jumau, L., 78, 1295, 1299.  
 Junckers, E., 1313.  
*Jung, A., see F. Rußsell.*  
 Jung, C., 2591, 2761.  
 Jung, C., and A. Kittel, 2659.  
 Jung, K., 2659.  
 Jung-Reinhart, C., 2602.  
 Jungbluth, J., 2598.  
*Junger, E., see R. Jaeger.*  
*Junger, E., see also E. Unger.*  
 Jungfleisch, 1022.  
 Jungfleisch, E., 1016.  
 Jungfleisch, E., and L. Brunel, 1026, 1096.  
 Junghans, A., 2620, 2692.  
 Junghans, M., 2590.  
 Jungner, E., 1303.  
 Junien, 198.  
*Junk, A., see E. Bergmann.*  
 Junk, A., 484.  
 Junken, C., 2922.  
 Junker, W., and F. Degener, 2420.  
 Jupeau, A., 2158.  
*Jurgens', A., see Naam. Venn. A. Jurgens' etc.*  
 Jurgens, B., 2480.  
*Jurgens, J., see W. van der Heyden.*  
*Jurgens, J., see H. Timpe.*  
 Jurgens, J., and H. Timpe, 284, 2761.  
 Jurisch, K., 672, 725, 1260, 1276.  
*Jurissen, A., see F. Berl.*  
*Jurissen, H., see E. Berl.*  
 Jurschina, F., and R. von Gunesch, 957.  
 Jury, W., 1207.  
 Just, F., 2452.  
 Just, G., 672, 2405, 2437, 2444, 2459, 2489, 2497, 2500, 2502, 2505.  
 Just, J., 947.  
 Just, L., and H. Heine, 1094.  
 Justice, P., 298, 2619.  
 Justin-Mueller, 66.  
 Justin-Mueller, E., 66, 542, 1087.  
 Kablukoff, J., 2441.  
 Kachler, 1846.  
 Kachler, J., 2514, 2521, 2528.  
 Kachler, J., and F. Spitzer, 2514, 2521, 2526.  
 Kadish, R., and T. Buscher, 513, 662.  
 Kaehl, F., 456, 2114.  
 Kämmer & Reinhardt, 2766.  
 Kämmerer, H., 713.  
 Kaempff, F., 2766.  
 Kändler, R., 1848, 1856.  
 Käppen, H., 935.  
 Kaesmacher, C., 986, 1000, 1348, 1392, 1423, 1426, 1518.  
 Kafuku, K., 2516.  
 Kageneck, G. v., 2761.  
*Kahl, L., see R. Mohlau.*  
 Kahl, L., 2773.

- Kahlbaum, C., 1575, 2452.  
 Kahlbaum, G., 2403, 2431, 2452, 2497, 2498, 2500, 2502, 2504, 2507, 2789.  
 Kahlbaum, G., and K. Arndt, 2443.  
 Kohlenberg, L., and A. Lincoln, 2404, 2409, 2502.  
 Kahn, P., 3066.  
 Kahnert, 225.  
 Kailan, A., 2459, 2509.  
 Kaiser, 262, 1572, 2512, 2813, 2821, 2824, 2833.  
 Kaiser, A., 243, 298.  
 Kaiser, C., 1005.  
 Kaiser, E., 2434.  
 Kaiser, E., and L. McMaster, 2491.  
 Kaiser, H., 2632.  
 Kaiser, K., 687, 696, 703, 895, 900, 937, 943, 1004, 1005, 2252, 2389.  
 Kaiser, P., 2826.  
 Kaiser, R., 1924.  
 Kaiser, W., 2737.  
 Kalakoutski, N., 1636.  
 Kalb, C., de, 1206.  
 Kalbfleisch, F., 1233, 1366, 1391.  
 Kalbukoff, J., 2454.  
 Kaldenberg, J., 2696.  
 Kalhous, J., 2583.  
 Kalindt, 1583.  
 Kalinowsky, v. J., 99, 416.  
 Kalinowsky and Roth, 1073.  
 Kalinowsky, T., 1207, 1209.  
 Kalisch, H., 2472.  
 Kalka, E., 2282.  
 Kallivoda, J., and A. Boehm, 241.  
 Kalmann, A., 298.  
 Kalous, F., see *A. Grotte*.  
 Kalous, F., see *A. Neubauer*.  
 Kaltenbach, M., 1062, 1070, 1088, 1094, 1445, 1446, 2002, 2025, 2027.  
 Kamentzky, see *A. Frank-Kamentzky*.  
 Kameyama, N., 847.  
 Kamni, O., see *R. Adams*.  
 Kammer and Reinhardt, 2671.  
 Kammer, F., see *Chemische Fabrik, K. Kopper*.  
 Kammerer, H., 714, 1100.  
 Kanamari, S., 2410.  
 Kanamori, A., 2394.  
 Kanazawa, C., 2645.  
 Kandler, 391.  
 Kandler, G., 451.  
 Kanhauser, F., see *H. Ditz*.  
 Kannonikoff, J., 1016.  
 Kanouse, A., see *A. Samborn*.  
 Kanouse, C., see *W. Deutch*.  
 Kanouse, C., 2667, 2702, 2706, 2709.  
 Kantorowicz, J., 662, 664.  
 Kapen, H., see *I. Immendorff*.  
 Kapff, S. v., 2632.  
 Kaposi, 2793.  
 Kappeler, H., see *F. Fichter*.  
 Kappen, H., see *H. Immendorff*.  
 Kappen, H., see *C. Kraus*.  
 Kappen, H., 672, 673, 2741, 2743.  
 Kapps, J., see *G. Taylor*.  
 Karaoglanow, Z., 1326.  
 Karaoglanow, Z., and P. Dimitrow, 1042.  
 Karaoglanow, Z., and P. and M. Dimitrow 1055.  
 Karasek, 2901.  
 Karavodine, V. de, 1893, 2598, 2699, 2700, 2897.  
 Karcheski, X., 99, 2611.  
 Karl, G., see *A. Pictet*.  
 Karle, H., 2601.  
 Karlinski, J., 1016.  
 Karmarsch and Heeren, 1572, 1585.  
 Karoli, L., v., 1599, 1797, 2986.  
 Karop, G., 2781.  
 Karpen & Bros., 2773.  
 Karrer, P., see *J. Billweller*.  
 Karstairs, J., 2964.  
 Karsten, H., 459.  
 Karyscheff, A., 1278.  
 Kasass, I., 2411.  
 Kaserer, H., 945.  
 Kassel, R., see *K. Drucker*.  
 Kassling and Borrmann, 2782.  
 Kassner, G., 685, 849, 851, 2453, 2454.  
 Kast, 320, 1798, 1873.  
 Kast, H., 1931.  
 Kast, H., and P. Gunther, 719.  
 Kastle, J., and W. Kelley, 1016.  
 Kastle, J., and J. McHargue, 1034, 1338.  
 Kaszner, G., 685.  
 Katayama, M., 410.  
 Katayama, T., see *H. Ost*.  
 Kath, J., 2761.  
 Katschinsky, F., 1632, 1694.  
 Katsuyama, K., 238.  
 Katlein, A., see *H. Rodewald*.  
 Katz, A., 308.  
 Katz, G., 291.  
 Katz, L., 2486.  
 Katz, N., 3067, 3077.  
 Katz, S., see *A. Fieldner*.  
 Katz, S., see *G. Jones*.  
 Katz, S., and F. Ovitiz, 3005.  
 Kauder, E., 1334.  
 Kauffmann, E., 1071, 1223, 1287.  
 Kauffmann, H., 2502, 2519.  
 Kauffmann, M., 1072.  
 Kauffmann, W., 1108.  
 Kaufler, see *Gnehm*.  
 Kaufler, 67.

- Kauffer, F., 2468, 2488, 2496, 2502.  
 Kaufman, A., 849.  
 Kaufman, J., 2711.  
 Kaufman, S., 2565.  
 Kaufman, W., 391, 2696.  
 Kaufmann, *see Chem. Fabrik, Buckaw.*  
 Kaufmann & Co., *see Kommanditges.*  
 Kaufmann, H., 2452.  
 Kaufmann, J., 2681, 2690.  
 Kaufmann, W. v., *see M. Jacoby.*  
 Kaufmann, W., 465, 484.  
 Kaufmann, W. v., and A. Lewite, 421, 484.  
 Kausch, 308, 2692.  
 Kausch, O., 850, 1206, 1351, 1518, 2534, 2609, 2671, 2689, 2766, 2773.  
 Kautschungsgesellschaft Schon & Co., 2773.  
 Kawakita, Y., 1004.  
 Kay, J., 2818.  
 Kay, W., 3066.  
 Kay, W., and Thornliebank Co., 225, 226, 233.  
 Kaye, and Laby, 719.  
 Kaye, F., *see P. Schidrowitz*  
 Kays, T., 2685.  
 Kayser, *see Opitz.*  
 Kayser, *see E. Wall.*  
 Kayser, A., A. Young, and J. Williams, 1061.  
 Kayser, F., *see J. Ashton.*  
 Kayser, E., 3074, 3078.  
 Kayser, E., and A. Demolon, 2420, 2462.  
 Kayser, H., 308, 1059.  
 Kayser, L., 2426.  
 Kayser, R., 3987, 2516, 2586.  
 Kazay, E. von, 2514, 2518.  
 Kazmann, B., and Kellogg Toasted Corn Flake Co., 2426.  
 Keane, C., *see G. Lunge*  
 Kearney, H., and J. Harrison, 2564.  
 Kearney, T., 486.  
 Kearns, H., 231.  
 Keay, J., 2560.  
 Kebler, L., 2534, 2789.  
 Kedesdy, E., 1098, 1333, 2627.  
 Kee, W., 808.  
 Kee, W., and U. Wedge, 1265, 1290.  
 Keen, M., *see W. Ladd.*  
 Keene, A., 2826, 2829, 2831, 2832.  
 Keeney, R., *see D. Lyon.*  
 Kefenstein, 2412.  
 Kegel, M. de, 2590, 2759.  
 Kehler, E., *see E. Schoenfelder.*  
 Kehlstadt, A., 1016.  
 Kehr, P., 2704, 2705.  
 Keightley, A., 2739.  
 Keil, F., *see A. Godwin.*  
 Keil, F., 1854.  
 Keil, G., and K. Plischke, 2580.  
 Keil, H., and R. Stoltenhoff, 456.  
 Keil, J., 456.  
 Keilholtz, P., 2611.  
 Keilmann Bro., 2710.  
 Keimatsu, S., and B. Ikeda, 3005.  
 Keiser, E., 710.  
 Keiser, E., and L. McMaster, 672.  
 Keith, 2812.  
 Keith, W., 2832.  
 Kekule, A., 2516.  
 Kekule, A., *see A. Fleischer.*  
 Kelber, C., and A. Schwarz, 1036.  
 Keler, H. v., and A. Weindel, 1111, 1121, 1122.  
 Keller, A., 1076, 2741, 2978.  
 Keller, C., 2968.  
 Keller, E., 838, 959, 1270, 2585.  
 Keller, H., 2392, 2702.  
 Keller, H., and P. Maas, 1057.  
 Keller-Dorian, A., 232.  
 Kellerman, K., 2785.  
 Kellerman, K., and I. McBeth, 182, 348.  
 Kelley, *see also Kelly.*  
 Kelley, T., 104, 2593.  
 Kelley, W., *see J. Kastle.*  
 Kelley, W., 2897.  
 Kelley, W., and J. Bentham, 2837, 2921.  
 Kellner, *see Ritter-Kellner.*  
 Kellner, C., *see E. Ritter.*  
 Kellner, C., 5, 27, 168, 274, 328, 563, 657, 955, 2637.  
 Kellner, O., 318, 398.  
 Kellner, O., Y. Mori, and M. Nagao-ka, 398.  
 Kellner-Partington Paper Pulp Co., Ltd., 298.  
 Kellogg Toasted Corn Flake Co., *see D. Kazmann.*  
 Kellogg & Sons, *see Spencer.*  
 Kelly, A., 2822.  
 Kelly, J., 391.  
 Kelly, J., and H. Reid, 2564.  
 Kelly, T., 1806, 2652, 2671, 2698, 2766.  
 Kelly, T., G. Bell, and R. Kirk, 1879.  
 Kelly, W., 2837, 2921.  
 Kelly, W., and J. Bentham, 2837, 2921.  
 Kelsey, J., 2591, 2702.  
 Kelsey, W., and The New Jersey Zinc Co., 1116.  
 Kelling, M., *see Gewerkschaft des Steinkohlenbergwerkes Lothringer.*  
 Kemp, 2825, 2832.  
 Kemp, G., 710, 2741, 2832, 2837,



- 2842, 2864.  
*Kemp, W.*, see *G. Thomson*.  
*Kemp, W.*, 2809.  
*Kempe, D.*, 291, 308.  
*Kemper, R.*, 413, 2449.  
 • *Kempf, R.*, 672, 944, 2502, 2511.  
*Kempshall, E.*, 2608, 2659, 2677,  
 2678, 2683, 2687, 2695, 2696, 2703,  
 2704, 2708, 2724, 2725.  
*Kempton, W.*, 2773.  
*Kendall, E.*, see *A. Osterberg*.  
*Kendall, F.*, 804, 1133.  
*Kendall, J.*, and *R. Trested*, 2616,  
 2663.  
*Kendall, S.*, see *K. Brown*.  
*Kende, S.*, 468.  
*Kenevel, J.*, 2426.  
*Kennard, F.*, 308.  
*Kennedy, A.*, 2612, 2619.  
*Kennedy, T.*, and *F. Heckel*, 2408.  
*Kennington, W.*, 2773.  
*Kennis, L.*, 2601.  
*Kenrick, F.*, 806.  
*Kent, F.*, 2750, 2882, 2895.  
*Kent, F.*, see *T. Middleton*.  
*Kent, F.*, and *T. Middleton*, 2901.  
*Kent, N.*, 2471.  
*Kenyon, 2837*.  
*Kenyon, H.*, 2403.  
*Kenyon, H.*, and *I. Swindells*, 1011,  
 1030, 1301.  
*Kenyon, J.*, and *T. Lowry*.  
*Kenyon, J.*, see *R. Pickard*.  
*Keppeler, G.*, 1075, 1100, 1103, 1133,  
 1261.  
*Keppeler, G.*, and *Hanisch*, 1059.  
*Keppeler, G.*, *G. Lunge*, and *K. Rein-*  
*hardt*, 1131.  
*Kepper, E.*, 2678.  
*Ker, see D. Edwards-Ker*.  
*Ker, J.*, 2601.  
*Ker, W.*, 2587, 2677.  
*Kerb, J.*, 664.  
*Kerckhoff, P.*, van, 1583.  
*Kerckhoff, P.*, van, and *F. Reuter*,  
 1583, 1586, 1641, 1646, 1716.  
*Kerfoot, E.*, see *T. Kerfoot*.  
*Kerfoot, T.*, 3023.  
*Kerfoot, T.*, and *E. J. Irvine*, and  
*W. Haworth*, 3023.  
*Kerkenbusch, see Voecklinghaus*.  
*Kerkhoff, E. van den*, see *H. Heil*.  
*Kerkhoff, v.*, *E.*, 2394, 2665, 2752.  
*Kerkow, W.*, 2749.  
*Kern, 121*.  
*Kern, E.*, 242.  
*Kern, J.*, see *C. Hager*.  
*Kern, L.*, 308.  
*Kerotype, Ltd.* and *T. Middleton*,  
 3080.  
*Kerp, W.*, 2457.  
*Kerp, W.*, and *P. Wohler*, 281, 308.  
*Kerr, G.*, see *G. Craighill*.  
*Kerr, G.*, see *W. Dickson*.  
*Kerr, G.*, see *J. Paterson*.  
*Kerr, G.*, 452.  
*Kerr, J.*, see *F. Morris*.  
*Kerr, J.*, 1059, 1637, 2431.  
*Kerr, W.*, see *A. Liebmann*.  
*Kerr, W.*, 804.  
*Kerschaw, G.*, 308.  
*Kershaw, G.*, and *A. Seeley*, 226.  
*Kershaw, J.*, see *F. Knecht*.  
*Kershaw, W.*, 298.  
*Kerstjens, A.*, see *J. Boeseken*.  
*Kertesq, Z.*, 308.  
*Kertesz, A.*, 664.  
*Kessler, C.*, 2600.  
*Kessener, N.*, 344.  
*Kessler, see Faure*.  
*Kessler, 86*, 1351, 1364, 1384, 1386,  
 1389.  
*Kessler, A.*, see *J. Giersbach*.  
*Kessler, A.*, see *A. Gorboff*.  
*Kessler, G.*, 959.  
*Kessler, H.*, 3000, 3001.  
*Kessler, J.*, see *M. Faure*.  
*Kessler, J.*, 812, 1303, 1383, 1890,  
 1931, 2493, 2692, 3026, 3029.  
*Kessler, J.*, and *C. Ferrand*, 1383.  
*Kessler, L.*, 1011.  
*Kessler, R.*, 1078.  
*Kester, W.*, 2581.  
*Kestner, see A. Scheurer-Kestner*.  
*Kestner, 741*, 786, 1239, 1375, 1378,  
 1385, 1396, 1398.  
*Kestner, J.*, 2681, 2691.  
*Kestner, P.*, 308, 945, 1235, 1271,  
 1275, 1281, 1356.  
*Kestner Evaporating Co.*, see *Gibbs &*  
*Co.*  
*Kesztler, E.*, 451.  
*Ketcheson, J.*, 568.  
*Ketel, van*, 243, 264.  
*Kette-Jassen, W.*, 460.  
*Kettlebrook, F.*, 274.  
*Kettler, G.*, see *O. Bruener*.  
*Kettler, G.*, 693, 696, 849.  
*Keuchenius, P.*, 2997.  
*Keukelaere, G. de*, 114, 252.  
*Kcussler, E.*, 2319.  
*Key, see A. Cooper-Key*.  
*Key-Aberg*, 213.  
*Keyes, F.*, 298.  
*Keyes, G.*, and *W. Winninghoff*, 2468.  
*Keys, W.*, 298.  
*Kheifets, Z.*, see *L. Jalonstre*.  
*Khitti, F.*, 3061.

- Khotinsky, A. de, 2650.  
 Khotinsky, E., and M. Melamed, 2386.  
 Kibler, A., 2437.  
 Kiby, W., 308, 2419.  
 Kichner, 3074.  
 Kidston, W., 2891.  
 Kiel, H., and R. Stoltenhoff, 463.  
 Kielmayer, 113.  
 Kielmeyer, A., 263, 308.  
 Kiermayer, J., 1084.  
 Kieser, 2873.  
 Kieserling, R., 2686.\*  
 Kietabl, C., 2395.  
*Kikina, S., see M. Konowalow.*  
 Kilburn, B., 3066.  
 Kilburn-Scott, 1231.  
 Kilburn-Scott, E., 849, 1005.  
 Kilby, W., 298.  
 Kilian, W., 2678.  
 Kiliani, H., and M. Bazlen, 44.  
 Kiliani, H., and F. Koehler, 238.  
 Kiliani, H., 2465.  
 Kilmer, F., 538, 540.  
 Kilner, A., 3077, 3078.  
 Kilroy, T., 1370, 1388.  
 Kimball, F., 448.  
 Kimoto, 242.  
*Kind, R., see W. Eilner.*  
 Kindscher, H., 429. •  
 Kindt, 1584.  
 Kindt, G., 2, 1698, 1757.  
*Kinemacolour Co., see W. Fox.*  
*Kinemacolour Co., see W. Hickey.*  
*King, A., see W. Haworth.*  
 King, A., 2401.  
 King, A., and F. Mason, 2543.  
 King, C., 2697, 2698.  
 King, C., and R. Jellicoe, 2385, 2576, 2605, 2606, 2891.  
 King, G., and M. Lindsley, 1829.  
*King, H., see K. Orton.*  
 King, H., 2841, 2842.  
 King, J., 2837.  
*King, T., see P. Rickells.*  
 King, T., 2705.  
*King, W., see Cleminson Electric Lamp Attachment, Ltd.*  
 King, W., 2718, 2832.  
 King, W., F. Bayard and F. Rhodes, 2778. •  
 Kingscote, E., 2606, 2650.  
 Kingsley, 2810.  
*Kingsley, G., see N. Dekker.*  
 Kingsley, G., 1075.  
 Kingsley, J., 2783.  
 King's Norton Metal Co., Ltd., 2978, 2982. •  
 King's Norton Metal Co., T. Bayliss, H. Brownson and H. Smith, 78.  
*King Powder Co., see G. Peters.*  
 King Powder Co., 1829.  
 Kingston, W., 2694.  
 Kingzett, C., 2514, 2726, 2994.  
 Kingzett, C., and E., 2723.  
 Kingzett, C., and F. Lovegrove, 272.  
 Kingzett, C., and R. Woodcock, 3004.  
*Kingzett, E., see C. Kingzett.*  
 Kingzett, E., 2726.  
*Kinmond, J., see J. Lord.*  
 Kinscla, J., 2790, 2791. •  
 Kippenberger, C., 743, 2650.  
 Kipper, E., 2679, 2683, 2686, 2706, 2713.  
 Kipper, E., and E. Edson, 2714.  
 Kipper, E., and J. Jarvis, 2706.  
 Kipper, H., 921.  
*Kipping, F., see A. Lapworth.*  
 Kipping, F., 2521.  
 Kipping, F., and W. Pope, 2515, 2521.  
 Kirby, C., 2919.  
 Kirby, W., 1335.  
 Kircher, J., 1033.  
 Kirchhofer, H., 672, 988.  
 Kirchner, A., 2652.  
 Kirchner, E., 279, 308, 1624.  
*Kirchner, W., see Chem. Fabr. Grunau.*  
 Kirchner, W., and B. Tollens, 2.  
 Kirchofer, 1276.  
 Kirchhoff, C., 392.  
 Kirivan, C. de, 2622, 2623.  
*Kirk, H., see G. Sershall.*  
*Kirk, J., see J. and C. Bedford.*  
*Kirk, J., see G. Sershall.*  
 Kirk, J., 2826.  
*Kirk, R., see T. Kelly.*  
*Kirkland, R., see N. Vrooman.*  
 Kirkman, H., 788.  
 Kirkpatrick-Picard, H., 1081.  
 Kirmisson and Phocas, 2743.  
 Kirner, A., 298.  
*Kirmeyer, see Celluloid Fabrik.*  
 Kirsanow, W., 2947, 2957.  
 Kirsch & Mauser, 1073.  
 Kirschner, M., 1074.  
 Kirstein, 2738.  
*Kirton, T., see Mañ.*  
 Kishi, K., 2624, 2639.  
 Kismiensky, 1706, 2350.  
 Kissling, C., 2788.  
 Kissling, R., 1317. •  
 Kita, G., 175, 181.  
 Kiter, H. v., 1004.  
 Kitsee, I., 28, 240, 298, 308, 563, 569, 574, 657, 1111, 1123, 1790, 2390, 2612, 2659, 2701, 2732, 2736, 2756, 2877.  
 Kitsee, J., 1302, 1303, 2615, 2673,

2675.  
*Kittel, A., see C. Jung.*  
 Kittelsen, E., and F., 604.  
*Kittelsen, F., see E. Kittelsen.*  
*Kittelson, T., see E. Kittelson.*  
 Kittelson, E., and T., 269.  
 Kjaer, A., and Co., 308.  
 Kjeldahl, 467, 520, 2315, 2317, 2318.  
 Kjeldahl, J., 419, 2318.  
 Klaar, G., 2707, 2710.  
 Klaeser, M., 672.  
 Klages, A., and Saccharinfabrik, List & Co., 846.  
 Klages, A., and R. Sautter, 2481.  
*Klagsbrunn, see Loewy.*  
*Klary, C., see J. Brunner.*  
 Klary, C., 2809.  
 Klason, 57, 152, 213, 547.  
 Klason, P., 44, 264, 274, 308, 353, 387, 663.  
 Klason, P., and T. Carlson, 1665.  
 Klason, P., v. Heidenstam, O. Fagerlind, and E. Norlin, 265.  
 Klason, P., G. v. Heidenstam and E. Norlin, 44, 56, 2408.  
 Klason, P., and H. Melliquist, 274, 1038, 1056, 1091, 1310.  
 Klason, P., and E. Norlin, 2407.  
 Klason, P., and B. Segerfelt, 274, 309.  
*Klatte, see Bremer Trockenplatten.*  
 Klatte, F., and A. Rollett, 2692, 2773.  
 Klauder, J., 227, 3066.  
*Klaudy, J., see O. Efrem.*  
 Klausner, K., 2822.  
 Klausner, O., 2716.  
 Klausner, W., 2814.  
*Klaye, R., see E. Berl.*  
 Kldiaschwili, A., 414.  
*Kleber, C., see F. Power.*  
 Kleber, C., 2393, 2488.  
 Klee, A., 2564.  
 Kleeberg, 243.  
 Kleemann, R., 2462.  
 Kleffel, 1621, 1887, 2801.  
 Kleffel, L., 2805, 2886.  
 Klein, 213, 2873, 2874.  
 Klein, A., 5, 36, 281, 298, 309, 337, 2024, 2426, 2657, 2658.  
*Klein, E., see A. Bauer.*  
 Klein, E., 2993, 2997.  
*Klein, F., see H. Ost.*  
*Klein, F., see A. Pinner.*  
 Klein, F., 186, 190, 227, 2423, 2570.  
 Klein, H., 2869, 2872.  
 Klein, V., 2601.  
 Kleinert Rubber Co., 2726.  
 Kleinewefers, W., 3066.  
 Kleinewefers Sohne, 225, 226, 230, 3066.  
 Kleinmann, 2680, 2744.  
 Kleinmann Bros., 2688, 2689.  
 Kleinstaub, F., 2597, 2660, 2720, 2766.  
*Kleinstück, M., see F. Fischer.*  
*Kleinstueck, M., see H. Wislicenus.*  
 Kleinstuck, M., 2400.  
 Klemencic, J., 1016.  
 Klemm, 285, 320, 790.  
 Klemm, P., 298.  
*Klencke, H., see Metallbank u. Metallurgische Gesellschaft.*  
 Klencke, H., 1092, 1208, 1219, 1222, 1280.  
 Klepetko, F., 1072, 1079.  
 Klepp, H., 2854, 2891.  
 Kletinsky, V., 1592.  
 Kletzinsky, 2471.  
 Kletzinsky, V., 100.  
 Klever, F., 2537, 2538.  
 Klever, J., 1016.  
 Klic, K., 2631.  
 Klie, C., 1624.  
 Klie, G., 2021, 2787.  
 Kling, A., 2435, 2445, 2465.  
 Klinger, A., 2604, 2671.  
*Klinger, G., see O. Baudisch.*  
 Klinger, G., 672, 691, 717.  
 Klinger, H., and A. Maassen, 1016.  
 Klinghammer, J., 1088.  
 Klink, H., 1375.  
 Klinkerfues, F., 945.  
 Klinisch, J., 298, 2872.  
 Klippert, 1213.  
 Klippert, L., 1209.  
 Klock, A., 2922.  
 Klopfer, 391.  
 Klopfer, F., 456.  
 Klopfer, L., 2605, 2619.  
 Klopfer, W., 456.  
 Klopsch, P., 2723.  
 Klose, G., 2579.  
*Klotz, A., see O. Hauser.*  
 Kluge, J., 2419, 2422.  
 Klute, F., and H. Ising, 1273.  
 Knab, D., 1280.  
*Knaffl-Lenz, E. v., see Z. Skraup.*  
 Knaggs, A., 180.  
 Knap, W., 710.  
 Knapp and Taylor, 672.  
 Knapp, F., 672, 1016.  
*Knapp, I., see G. Taylor.*  
*Knaster, M., see S. Pianko.*  
 Knauer, 2854.  
 Knecht, 1882.  
 Knecht, Rawson, and Lowenthal, 230.  
*Knecht, E., see J. Hubner.*  
 Knecht, E., 20, 67, 110, 111, 112, 121, 161, 180, 220, 229, 344, 346, 379

- 535, 663, 1669, 1670, 1671, 1903,  
1905, 2645, 3036.  
Knecht, E., and J. Allan, 535, 536.  
Knecht, E., and B. Bostock, 1931.  
Knecht, E., and F. Fernandez, 663.  
Knecht, E., and W. Hall, 521, 663.  
Knecht, E., and E. Hibbert, 1333.  
Knecht, E., and J. Kershaw, 63.  
Knecht, E., and A. Lipschitz, 1671.  
Knecht, E., A. Perl, and P. Spence  
& Sons, Ltd, 86.  
Knecht, R., 2647.  
Kneller, W., 1010.  
Knelles, C., 2600.  
Knibbs, G., 1722.  
Knieriem, W., v., 348.  
Knietisch, 1106, 1123, 1162, 1321,  
1331.  
Knietisch, R., 1100, 1105, 1109, 1111,  
1121, 1113, 1134, 1137, 1141, 1142,  
1191, 1314, 1317, 1318, 1320, 1527.  
*Kniffen, F., see C. Davis.*  
Kniffen, F., 2394, 2395, 2502, 2504,  
2583, 2725, 2940.  
Knight, C., 2905.  
Knight, H., 2643, 2710.  
Knight, J., 958, 1300.  
*Knight, L., see J. Inglis.*  
Knight, O., 309, 2773.  
Knight, R., and W. Peck, 2726.  
*Knight & Company, see F. Rawson*  
*Knoblauch, O., 2502.*  
Knoch, F., 2742.  
Knoche, I., 2612.  
Knoche, L., and M. Issleib, 2591.  
*Knoche, P., see E. Lehman.*  
Knocke, W., 1343, 1366.  
Knodler, E., 672, 3076.  
Knodler, E., and C. Dodge, 2555.  
Knosler, 1900.  
Knosler, O., 2595, 2645.  
Knosel, T., 290, 309, 330, 921,  
2650.  
Knoeselmehl, 291.  
Knoevenagel, E., 189, 2514, 2773,  
2988, 3011, 3014, 3055, 3061.  
Knoevenagel, E., and C. Bueckel,  
2459.  
Knoevenagel, E., J. Reis, and F.  
Kuckyk, 3083.  
Knoll & Co., 325, 2650, 2773, 3007,  
3008, 3009, 3010, 3011, 3012, 3013,  
3019, 3034, 3035, 3043, 3051, 3052,  
3055, 3060, 3061.  
Knoll, A., and H., and M. Daege,  
3009.  
*Knoll, E., see R. Reinecke.*  
*Knoll, H., see A. Knoll.*  
Knop, W., 2470.  
Knopf, A., 298, 1572, 1585, 1586,  
1863.  
Knopfmocher, A., 309.  
Knopp, A., and W., 1572, 1586, 1849,  
1850, 1864.  
*Knopp, W., see A. Knop*  
*Knorr, E., see W. Koenigs.*  
Knorr, J., 1330.  
Knorr, L., and H. Weyland, 1787,  
1788.  
Knorre, 738.  
Knorre, G. von, 672, 688, 1051.  
Knorre, G. von, and K. Arndt, 672,  
713, 715, 1252.  
Knosel, T., 921.  
Knottenbelt, H., 699.  
Knowles, A., 701.  
Knowles, F., 1075.  
*Knowles, J., see J. Dean.*  
Knowles, W., 227.  
Knox, 727.  
Knox, J., 672, 925.  
Knudsen, E., 1075.  
Knuppel, C., 2773.  
Kobek, H., 2773.  
*Kobert, R., see J. Bruhl.*  
Koch, 2781.  
*Koch, A., see Hovermann.*  
*Koch, A., see F. Treadwell.*  
Koch, A., 850, 2482.  
Koch, A., and S. Seydel, 672.  
Koch, B., 2922.  
*Koch, C., see Bochum-Lindener.*  
Koch, C., 703, 2599.  
*Koch, F., see C. Netz & Co.*  
Koch, F., 2, 197, 242, 2524, 2528,  
2529, 2689, 2704.  
Koch, H., 1337.  
*Koch, M., see F. Foerster.*  
*Koch, P., see R. Mohlau.*  
Koch, W., 2588.  
Kochel, 2758.  
Kochendoerfer, E., 1005.  
Kocher, R., 197, 664.  
*Kochitz, see A. Porai-Kochitz.*  
Kochmann, W., 848, 944.  
*Kock, see Erste Offenbacher Celatine-*  
*Folien.*  
*Kodak, see Soc. Anon. Franco-Kodak.*  
Kodak, G. m. b. H., 2892.  
Kodak, Ltd., 2916.  
*Koerber, G., see Harburger Eisen und*  
*Bronzwerke Aktien Gesellschaft.*  
Koerber, G., 117, 2558.  
Kobig, J., 2451.  
*Kobner, E., see K. Auwers.*  
Koechlin, 2622.  
Koechlin, C., 54, 63, 119, 121.

- Köchlin, F., 454.  
 Koechlin, H., 60, 2641.  
 Koechlin-Baumgartner, H., 60.  
 Kögel, P., 393.  
 Koehler, F., *see* H. Kiliana.  
 Koehler, and Marqueyrol, 672, 695, 2308.  
 Koehler, A., M. Marqueyrol and P. Jovinet, 2310, 2317.  
 Koehler, A., M. Marqueyrol and H. Lorette, 2313.  
 Köhler, H., 2609, 2620.  
 Köhler, J., 2778.  
 Köhler, T., 2747.  
 Köhnke, 2811.  
 Kölf, H., 1843.  
 Koelichen, K., 84, 2401.  
 Koelliker, A., *see* C. Loewig.  
 Koelner Accumulatoren Werk, G. Hager, 2634.  
 Koelsch, F., 1056.  
 Koelsch, H., 1310.  
 Koenig, *see* F. Haber.  
 Koenig, *see* Van Endert.  
 König, 50, 51, 258, 2840, 2874.  
 Koenig, A., *see* F. Haber.  
 Koenig, A., and E. Elod, 672.  
 Koenig, A., 672, 694, 849.  
 Koenig, F., *see* W. Holwech.  
 König, J., *see* R. Filtig.  
 Koenig, J., *see* J. Hasenbaumer.  
 Koenig, J., *see* Z. Skraup.  
 Koenig, J., 206, 275, 279, 309, 328, 352, 355, 387, 1094.  
 Koenig, J., and E. Becker, 259, 275, 352, 370, 371, 657.  
 Koenig, J., J. Hasenbaumer, and M. Braun, 209.  
 Koenig, J., *see* F. Huehn.  
 Koenig, J., and C. Krauch, 84.  
 Koenig, J., and E. Rump, 274, 350.  
 Koenig, L., 425.  
 Koenigs, W., *see* E. Erwig.  
 Koenigs, W., and A. Eppens, 2521.  
 Koenigs, W., and J. Hoerlin, 2521.  
 Koenigs, W., and E. Knorr, 183, 184, 660.  
 Koenkendorff, *see* W. Jaeger-Koenkendorff.  
 Koepf, R., and Co., 943, 3002, 3005.  
 Köppen, K., *see* G. Bodlander.  
 Körber, F., 2398, 2408, 2423.  
 Koerber, V., *see* C. Blacher.  
 Koerner, 197, 200.  
 Koerner, T., 128, 137, 140, 213, 281, 2419.  
 Körte, F., 2446.  
 Körting, 1070, 1190, 1235, 1375.  
 Körting, Bros., *see* Körting Gerbrüder.  
 Körting, Gebr., Aktien Gesellschaft, 1234, 1235, 2423.  
 Kösewitz, F., 2632.  
 Koethe, G., *see* A. Michaelis.  
 Koetsch, F., 2580.  
 Koetschet, J., and M. Theumann, 3021.  
 Koettnitz, C., 2492.  
 Kofmann, K., and H. Schibsted., 2410.  
 Kohl and Wengenroth, 2678, 2689, 2694.  
 Kohl, F., 2755.  
 Kohl, M., 231.  
 Kohler, H., 1031, 1034.  
 Kohlrausch, F., 952, 2497, 2499.  
 Kohlrausch, O., 400.  
 Kohlrausen, F., *see* Marignac.  
 Kohlschuetter, V., and M. Kursche-roff, 712, 713, 1260.  
 Kohlschuetter, V., and K. Vogdt, 712.  
 Kohn, *see also* Cohn.  
 Kohn, J., and S. Strauss, 2729.  
 Kohn, L., *see* O. Bleir.  
 Kohn, M., *see* A. Franke.  
 Kohn, M., 2392, 2401.  
 Kohn, M., and F. Bum, 2402.  
 Kohn, M., and G. Lindauer, 2402.  
 Kohn, S., 1271.  
 Kohner, A., 2761.  
 Kohrmann, 985.  
 Kohsel, O., 1302.  
 Kokscharow, N. v., 1016.  
 Kolb, 114, 151.  
 Kolb, F., 298.  
 Kolb, J., 114, 117, 158, 160, 1059, 1304.  
 Kolbe, 665.  
 Kolbe, C., and T. Lindfors, 1391.  
 Kolbe, H., 196, 672, 2470.  
 Kolby, J., 2856.  
 Kolf, F., 1825, 1851, 1856, 1877.  
 Kolkow, von, 2868.  
 Kolkwitz, R., 309.  
 Kolkwitz, R., and Pritzkow, 309.  
 Koller, G., 2660, 2671, 2675, 2752, 2766, 3045, 3046, 3050, 3060.  
 Koller, H., 2692, 2702, 2752.  
 Kollmann, L., 139, 265, 298.  
 Kollner, C., 298.  
 Kolthoff, I., 2426.  
 Komarowsky, A., 2481.  
 Korimanditgesellschaft L. Kaufmann & Co., 1381.  
 Komnenos, T., 2465.  
 Komorous, J., 2714.  
 Komppa, G., 2514, 2521.  
 Konarzewski, L., 2837.  
 Kondakoff, I., 2455, 2518, 2519, 2531.

- Kondakoff, J.*, see *E. Lutschinin*.  
*Kondakow, J.*, see *I. Kondakoff*.  
 Kondakow, J., and J. Schindelmeiser, 2525.  
 Kondratieff, D., 2254.  
 Koninck, L., de, 1, 1056, 2313, 2470, 2837.  
 Koningberger, 389.  
 Konitzer, F., 227.  
 Kononnikoff, J., 2452.  
 Konnonikoff, J., and A. Saytzeff, 2438.  
*Konowalow, D.*, see *N. Menschutkin*.  
 Konowalow, D., 2383, 2431, 2440, 2452, 2459, 2487, 2496.  
 Konowalow, D., and A. Winkelmann, 2432.  
 Konowalow, M., and S. Kikina, 2520.  
*Konschin, N.*, see *Manufakturen*.  
*Konsortium*, see *Consortium*.  
*Koolman*, see *Doornkaat-Koolman*.  
 Koontz, E., 2584, 2687.  
 Koop, 292.  
 Kope, G., 294.  
 Kopitsch, K., 2423.  
*Kopke*, see *Stoll & Kopke*.  
 Kopp, 1007.  
*Kopp, E.*, see *W. Blythe*.  
 Kopp, E., 1604, 1877.  
 Kopp, H., 2, 672, 1016, 2398, 2446, 2489, 2497, 2500, 2507, 2509.  
 Kopp, O., and E. Usueli, 227.  
 Koppel, J., 806.  
*Koppen*, see *Sudheim*.  
*Kopper, K.*, see *Chemische Fabrik K. Kopper*.  
*Koppers Co.*, see *M. Darren*.  
 Koppers, H., 917, 944, 1031, 1072, 1075.  
 Koppmann, G., 2747, 2750, 2863, 2909.  
 Korda, D., 1076.  
*Koreff, R.*, see *H. Goldschmidt*.  
 Korn, O., 2788.  
 Korn, S., 2709.  
 Korndorff, T., 291, 309.  
 Korper, S., 2694.  
 Korselt, J., 615.  
 Korth, A., 2869.  
 Korvin Sakovicz, T. van, 481.  
 Koshino, 9483.  
 Koskil, F., 2701.  
 Kosliz, B., 2627.  
 Kosmann, 1086.  
*Kossakowsky, L.*, see *C. Schall*.  
 Kossakowsky, L., 2432, 2442, 2490, 2496, 2497, 2499, 2502, 2504, 2505, 2506, 2507, 2508, 2509.  
 Kosowicz, A., 672, 935.  
 Kossuth, F., 2910.  
 Kossuth, F., and L., 2800.  
*Kossuth, L.*, see *F. Kossuth*.  
 Kostanecki, 2030.  
*Kostanecki, S.*, see *A. Cornelson*.  
 Kostanecki, S. v., and G. Roszbach 2773.  
 Kostanecki, S. v., and R. von Salis, 2773.  
 Koster, R., and W. Goettler, 2761.  
 Kostiurina, S., 125.  
*Kotjukow, J.*, see *A. Nastukoff*.  
 Koudeka, V., 468.  
*Koutovski, E.*, see *A. Saposchnikof*.  
 Kovalevsky, A., 2447.  
*Kowachiche, F.*, see *E. Jasset*.  
 Kowalke, O., 957, 1081.  
 Kowalski, J., 851, 2443.  
 Kowalski, J., and I. Moscicki, 702, 900.  
 Koyl, 2713.  
 Koyl, C., 2683, 2714.  
 Kozlik, B., 2652.  
 Krabbe, G., 468.  
 Kracht, A., 86.  
*Kraemer & Van Elsberg Gesellschaft*, see *G. Kraemer*.  
 Kraemer, & van Elsberg, 2585, 2680.  
 Kraemer & Elsberg, and G. Kraemer, 2390.  
*Krämer, G.*, see *M. Grodzki*.  
*Kraemer, G.*, see *A. Hoffmann*.  
 • Kraemer, G., 672, 2403, 2423, 2439, 2624.  
 Kraemer, G., Kraemer & van Elsberg Gesellschaft, 2582, 2616.  
 Kraemer, G., and A. Pinner, 2430, 2439, 2448, 2449, 2472.  
 Krämer, G., and A. Spilker, 1016.  
 Kraemer, H., 390.  
 Krämer, M., 2585.  
 Krafft, 33, 67.  
 Krafft, F., 65, 1100.  
 Krafft, F., and L. Merz, 1016.  
 Krafft, F., and A. Ross, 2385.  
*Krafft, H.*, see *C. Graebe*.  
 Krafft, L., and H. Sauve, 2993.  
 Krafft, V., 2632.  
*Krafft, W.*, see *G. Imbert*.  
 Kraft, 2747.  
*Kraft, C.*, see *C. Zakrzewski*.  
 Kraft, E., 238.  
 Kraft, F., 63.  
 Kraft, G., 2747.  
 Krag, 2630, 2931, 2932.  
*Krais, P.*, see *H. Akyroyd*.  
 Krais, P., 2569, 2615, 2632, 2652, 2653, 3061, 3072.  
 Krais, P., and Bradford Dyers As-

- sociation, 231, 2496, 2612.  
 Kraiss, P., 231.  
 Kraitschier, G., 2602.  
 Krajewski, L., 2620.  
 Krakow, 326.  
 Kral, 1817, 2030.  
 Kramer, A., 2965, 3054.  
 Kramer, E., 446, 459.  
 Kramer, L., 2392, 2568.  
 Krammer, H., 2601.  
 Kranendieck, F., *see* M. Bodenstein.  
 Kransfeld, 2789.  
 Krantz, N., 1207, 1209.  
 Kranz, A., 2958.  
 Kranz, C., *see* E. Votocek.  
 Kranzfeld, J., 2559.  
 Krapivin, S., *see* N. Zujinsky.  
 Kratz-Boussac, 2417.  
 Krauch, C., *see* J. Koenig.  
 Krauch, C., 2475, 2477.  
 Kraus, 2850.  
 Kraus, C., *see* E. Franklin.  
 Kraus, C., 394.  
 Kraus, C., H. Kappen, and Aktien  
 Gesellschaft Stickstoffdunger, 1006A.  
 Kraus, L., 2693.  
 Krauschwitzer Thonwarenfabrik fur  
 Chem. Ind., 2998.  
 Krause, *see* A. Kunz-Krause.  
 Krause, 213.  
 Krause, A., and V. Meyer, 1016.  
 Krause, E., and H. Blucher, 2773.  
 Krause, G., 309, 1000.  
 Krause, H., 281, 298, 309.  
 Krause, H., and H. Schneider, 2891.  
 Krause, M., 2681, 2685.  
 Krauss, *see* Fehling.  
 Krauss, C., *see* M. Leblanc.  
 Krauss, C., 687, 1157.  
 Krauss, C., and R. von Berneck, 1105,  
 1119.  
 Krauss, C., and P. Staehlin, 701,  
 702, 922.  
 Krauss, C., and J. Wach, 1108.  
 Krauss, J., 432.  
 Kraut, *see* F. Cohn.  
 Kraut, *see* Fremy-Kraut.  
 Kraut, K., 281, 694, 961.  
 Krawkow, N., 125.  
 Krayn, R., 2863, 2878, 2910, 2921.  
 Krebesz, 2837.  
 Krebs, *see* Geka-Werke.  
 Krebs, G., 2750, 2983.  
 Krecke, F., 1866.  
 Krecsy, B., 1059.  
 Kreidl and Heller, 2596.  
 Kreig, O., 1619.  
 Kreis, H., 2465, 2482.  
 Kreisel, F., and C. Seibert, 2632.  
 Kreke, F., 1622.  
 Krell, 1588.  
 Krell, G., 996, 1355, 1380, 1391, 1392.  
 Krell-Strzoda, 1390.  
 Kremann, 2502.  
 Kremann, R., *see* F. Kuster.  
 Kremann, R., *see* Z. Skraup.  
 Kremann, R., and R. Ehrlich, 1318,  
 2279.  
 Kremann, R., F. Wischo, and R.  
 Paul, 2517.  
 Kremer, C., *see* R. Schilling.  
 Kremer, F., 2602.  
 Kremer, O., 2559.  
 Krep, W., and P. Wohler, 309.  
 Kress, O., 298, 513.  
 Kress, O., and G. McNaughton, 34.  
 Kress, O., and C. Textor, 298.  
 Kress, O., and S. Wells, 298, 533, 574,  
 2054.  
 Kress, O., S. Wells, and V. Edwardes,  
 260.  
 Kressel, E., 309.  
 Kressmann, F., 198, 2426.  
 Kretz, 1241.  
 Kretzschmar, A., 1367.  
 Kreusler, U., and F. Dafert, 390, 459.  
 Kreutzer, 2907.  
 Kricheldorf, 2858.  
 Kriebel, V., 197, 2410.  
 Krieg, V., 2676.  
 Krieger, A., 2571.  
 Krieger, C., and G. Burt, 2736.  
 Krieger, J., 465.  
 Krippendorf, 2854.  
 Krippendorf, M., 2850.  
 Krische, W., and A. Spitteler, 2761.  
 Krissmanech, H., and F. Auderith,  
 226.  
 Krist, F., *see* B. Hafner.  
 Kristensen, S., 2748.  
 Krit, F., 2386.  
 Krit, T., 2457.  
 Krizek, J., 2425.  
 Krocke, 459.  
 Kroczeck, M., 851.  
 Kroeber, *see* Tollens.  
 Kroeber, 545.  
 Kroeber, E., *see* C. Lintner.  
 Kroeber, E., 238.  
 Kroeber, L., 2411.  
 Kroeber, W., 365, 366, 368.  
 Kroeber, W., C. Rimbach, and B.  
 Tollens, 238, 365.  
 Krötke, C., 468.  
 Kroh, 2809, 2811, 2813, 2821.  
 Krol, J., 2411.  
 Kroll, A., 944.  
 Kromayer, F., 395.

- Kromofag Vegyeszeti Gyar Szabo es Tarsi**, 2562.  
**Kron, R.**, 298, 1955, 1973, 1974, 2613, 2652, 2822.  
**Krone**, 2817.  
**Krone, H.**, 1600, 2821, 2825, 2835, 2912.  
**Kronstein, A.**, 959, 2401.  
**Krotoff, S.**, 1076.  
**Kroupa**, 1308.  
**Krowatschek, K.**, 1074, 1090.  
**Kruckenberg, C.**, 418.  
**Krudener, de**, 1577.  
**Krugel, C.**, *see A. Ladenburg*.  
**Kruegener, R.**, 805, 2855.  
**Krueger**, *see B. Tollens*.  
**Kruger**, 2805, 2819, 2821, 2824.  
**Krueger and Tollens**, 238.  
**Kruger, E.**, 2814.  
**Kruger, F.**, *see B. Frank*.  
**Kruger, F.**, 1016.  
**Kruger, J.**, *see G. Grube*.  
**Kruger, J.**, 284, 2825, 2854, 2901.  
**Kruger, M.**, *see F. Mann*.  
**Kruemming, M.**, 3056.  
**Kruss-Hefner**, 2495.  
**Kruess, G.**, and **E. Thiele**, 390, 412.  
**Kruss, H.**, 2494, 2495.  
**Krug, C.**, and **H. Bollert**, 2465, 2611.  
**Krug, W.**, and **J. Bloemen**, 2626.  
**Krueke, A.**, *see A. Ladenburg*.  
**Krugener**, 2854.  
**Kruger**, 1639.  
**Kruger, F.**, 309.  
**Kruger, J.**, *see G. Grube*.  
**Kruis, K.**, *see B. Rayman*.  
**Kruis, K.**, and **B. Rayman**, 2480.  
**Krull, H.**, 370.  
**Krulla, R.**, 112.  
**Krum, H.**, 2601.  
**Krumbhaar**, 2592.  
**Krumholz, A.**, and **R. Rausch**, 2683.  
**Krupp Aktien Gesellschaft**, 1790.  
**Krupp, F.**, 2981, 2982, 2984.  
**Krusche, E.**, 77, 104, 2655.  
**Kruse, E.**, 226, 227.  
**Kruskopf, H.**, 2983.  
**Krutwig, J.**, 1059.  
**Krysinski**, 2780.  
**Kube**, 1956.  
**Kube, A.**, <sup>o</sup>Co., 336.  
**Kube, A.**, and **F.**, 2591, 2678.  
**Kube, F.**, *see A. Kube*.  
**Kubelka, J.**, 2730.  
**Kubierschky**, 1978.  
**Kubierschky, K.**, 672, 1267, 1271, 2423, 2513.  
**Kubo, I.**, 2783.  
**Kuchenmeister**, 2787.  
**Kuckuk, F.**, *see Knoevenagel*.  
**Kudelsky, F.**, 1087.  
**Kuch, R.**, 1391.  
**Kuegler, K.**, 243.  
**Kuhl, H.**, 2773.  
**Kuhling, O.**, 672, 934.  
**Kuhling, O.**, and **O. Berkold**, 672, 934.  
**Kuehn**, 121.  
**Kuhn, B.**, and **F. Bengen**, 2466.  
**Kuehne, A.**, *see E. Briner*.  
**Kuhne, H.**, 1086, 1111, 1123, 1302, 1350.  
**Kull, W.**, 2684, 2687.  
**Kundig, T.**, 2447.  
**Kuenen, J.**, 2406.  
**Kuenen, J.**, and **W. Robson**, 2403, 2434, 2443, 2457.  
**Kung, F.**, 2758.  
**Kuenzi**, 1300.  
**Kuenzi, F.**, 1011.  
**Kurz, I.**, 2586, 2587, 2693.  
**Kuess, V.**, 298.  
**Kuester**, 413.  
**Kuester, A.**, 2422.  
**Kuester, F.**, 390, 408, 409, 410, 1016, 1101, 1102, 1103, 1116, 1131, 1134.  
**Kuster, F.**, and **Franke**, 1121.  
**Kuster, F.**, and **E. Heberlein**, 2402.  
**Kuster, F.**, and **W. Hommel**, 1016.  
**Kuster, F.**, and **R. Kremann**, 952, 1687.  
**Kuster, F.**, and **S. Munch**, 952.  
**Kuttner, F.**, 2632, 3069.  
**Kutzer, A.**, 1308.  
**Kugel, M.**, 1340.  
**Kuhlmann**, 1242, 1313.  
**Kuhlmann, C.**, 710.  
**Kuhlinann, F.**, 17, 672, 713, 718, 894, 895, 912, 944, 1059, 1591, 1893.  
**Kuhn**, 507, 508, 2851.  
**Kuhn, A.**, 298, 309, 1087.  
**Kuhn, E.**, 664.  
**Kuhn, H.**, *see J. Thornton*.  
**Kuhn, H.**, 2750, 2848, 2863.  
**Kuhn, M.**, *see E. Reillinger*.  
**Kuhn, R.**, 287, 309.  
**Kuhrt, H.**, 2750, 2863.  
**Kuldkepp, A.**, and **H. Graft**, 2761.  
**Kulisch, P.**, 1036.  
**Kull, O.**, 2910.  
**Kullgren, C.**, 1405, 1687, 1909, 2301, 2335, 2404, 2502.  
**Kultschitzsky**, 2783.  
**Kumagaya, N.**, 2601.  
**Kummell, F.**, *see E. Huss*.  
**Kumpfmiller, A.**, 290, 309.  
**Kumpfmiller, A.**, and **E. Schultgen**, 310, 1087.



- Kundt, A., 710, 718.  
 Kundt, A., and W. Roentgen, 672, 1059.  
 Kuner, A., & P. Millet, 2533.  
 Kunert, F., 2641.  
 Kunheim & Co., 917.  
 Kunisch, H., and G. Brunn, 2592, 2773.  
 Kunkler, E., 2591, 2910.  
 Kunow, A., 227.  
 Kunstfaden-Gesellschaft, 2624.  
 Kunta, L., and A. Rosenthal, 2688.  
 Kuntzen, H., 2919.  
 Kunz, *see* Ellrodt.  
 Kunz, E., 429.  
 Kunz-Krause, H., and R. Richter, 660.  
 Kunzl, G., *see* J. Schneider.  
 Kuperschläger, I., 1344.  
 Kur, E., 3071, 3083.  
 Kurhess, 1617.  
 Kuroda, S., 725.  
 Kurono, J., 2484.  
 Kurowski, F., *see* L. Litynski.  
 Kurscheroff, M., *see* V. Zechentler.  
 Kurtz, G.  
 Kurtz, A., 1010, 1360, 2854, 2857.  
 Kurtz-Hähnle, C., 298.  
 Kurz, C., 176, 177, 3066, 3074, 3078.  
 Kurz, O., *see* Holzstoffwerke Beixem-Pfeffersberg, *etc.*  
 Kurzer, A., *see* W. Herz.  
 Kusel, 2820.  
 Kutscherow, M., *see* V. Kohlschütter.  
 Kutscherow, M., 2480.  
 Kultner, F., *see* Soc. F. Kultner and P. Girard.  
 Kuttner, F., 2652.  
 Kuwert, W., and F. Büschler, 2693, 2696, 2745.  
 Kux, A., 1360.  
 Kuzirian, S., *see* P. Browning.  
 Kuzirian, S., *see* F. Gooch.  
 Kuzzer, E., 2713.  
 Kwagakif Toye Kabushiki Kwaisha, 3023.  
 Kyhlberger, C., *see* I. Cederberg.  
 Kyhlberger, G., *see* H. Backstrom.  
 Kymer, *see* S. Schwabe & Co.  
 Kynaston, J., 1016, 1030.  
 Kyneberger, G., *see* I. Cederberg.  
 Kynoch, *see* A. Cocking.  
 Kynock, 1186, 1186.  
 Kynoch, Ltd., *see* A. Cocking.  
 Kynoch, Ltd., 2967.  
 Kynoch, Ltd., and A. Cocking, 2951, 2952.  
 Kynoch, Ltd., and G. Hookham, 1889.  
 Kynoch, G., & Co., *see* A. Cocking.  
 Kynoch, G., & Co., and A. Cocking, 1423, 1460.  
 Kypke, M., 1271.  
 Kyriakides, L., *see* R. Earle.  
 Kyriakides, L., *see* W. Noyes.  
 Kyrkow, 2866, 2868.  
 Kyrkow, G., 2901.  
 Laar, J. van, 2403.  
 Laarmann, F., 3060.  
 Labarthe, L. de, 2743.  
 Labbe, A., 2550, 2773, 3026.  
 Labbe, H., *see* E. Donard.  
 Labbe, L., 1783, 2030, 2550, 2761, 2765.  
 Labbe, L., and V. Pauthonier, 2894.  
 Labbe, L., and H. Perret, 2894.  
 La Bellignite, 2681.  
 Lablonower, B., 2772, 2773.  
 Labois, E., 1291, 1292.  
 Labois, L., *see* E. Labois.  
 Labois, L., 1016, 1023, 1024.  
 Laborde, 2811, 2812, 2815, 2822, 2837, 2839.  
 Laborde and Brebisson, 2807, 2811.  
 Laborde and Lorifer, 2658.  
 Laborde, J., 2476.  
 Laborde, R., and R. Lorifer, 2745.  
 Labre, A., 2724.  
 Lebruyere, R., 2555.  
 Laby, *see* Kaye.  
 Lacan, E., 2822, 2844.  
 Lacassin, *see* E. Filhol.  
 Lach, B., 3076.  
 Lachman, A., 390, 3005.  
 Lachmann, A., 412.  
 Lachmann, W., 697.  
 Lachowicz, B., 2453.  
 Leclerc, A., 673.  
 Lacombe-Lane, E., and W. Pettie, 2895, 2896.  
 La Condamine, C. de, 688, 1444.  
 La Cour, J., 694, 849.  
 Lacroix, 1767.  
 Lacroix, A., J. Sella and J. deSauverzac, 86.  
 Lacroix, G., 1732, 2624, 3068.  
 Lacy, *see* DeLacy.  
 Lacy, B., 2408, 2422, 3023.  
 Ladd, W., and M. Keen, 298.  
 Ladenburg, A., 524.  
 Ladenburg, A., and C. Krügel, 672, 713, 2404, 2498, 2502.  
 Ladenburg, A., and E. Wundt, 1059.  
 Ladislaus and Udransky, 2476.  
 Laer, H., van 470.  
 Lafais, *see* Societe Bouillier.  
 Lafais, J., *see* J. Bouillier.  
 Lafarge, J., 2750, 2917.

- Lafay, see Courtois-Suffit.*  
 Lafaye, 1810.  
 Lafferty, H., 451.  
 Laffin & Rand, 2940, 2973.  
 Laffin & Rand Co., 2932.  
 Laffin & Rand Powder Co., 2978.  
 Lafollye, 2839.  
 Lafollye, de, 2837.  
 Lafond, A., 928.  
 Lafon de Camarsac, A., 2905.  
*Lafont, J., see G. Bouchardat.*  
 LaForge, B., and C. Hudson, 205.  
 La Forge, F., 197, 2551.  
 LaForge, F., and C. Hudson, 296, 300.  
 Lagache, J., 1033, 1211.  
 Lageneau, H., E. Nebel and M. Vignes, 1789, 2752.  
 Lagerheim, G., 243.  
 Lagermarck, S., 660.  
 Lagermarck, S., and W. Sverdrup, 298.  
*Lagerquist, C. see F. Reichmann.*  
*Lagrange, see Bouillon-Lagrange.*  
 Lagrange, P., 3059, 3071.  
 Lahache, M., 547.  
*Lahers, see Magnes-Lahers.*  
*Lahrens, see M. Magnes-Lahens.*  
 Laidley, T., 1631.  
 Lailler, A., 2787, 2793.  
 Lainer, 2852, 2857, 2901.  
 Lainer, A., 2854, 2857, 2858, 2859, 2905.  
*Laing, R., see G. Cossins.*  
 L'Air, Liquide Societe Anonyme pour l'Etude et l'Exploitation des Procédes Georges Claude, 853, 889, 890, 946, 1006A.  
 L'Air, Liquide Soc. Anon. Pour l'Etude et l'Exploitation des Procédes Georges Claude, & R. Levy, 685.  
 Laisnier, 2854.  
 LaJoanio, E., 2553, 2968.  
 Lake, H., 298, 3066.  
 Lake, W., 299, 453, 2745.  
 Lalave, J. de, 2924.  
 Lalbin, E., 1025.  
 Lalbin, M., 1023.  
 Lal Datta, R., 1033, 1288.  
 Lallemard, A., 1016, 1757.  
 Lamarliere, L. de, 242.  
 Lamb, 2824.  
 Lamb and Allis-Chalmers Co., 730.  
 Lamb, A., 1004.  
 Lamb, H., 849, 941.  
 Lamb, I., and D. Boyde, 2591.  
 Lamb, M., 727.  
 Lamb, M., and D. Boyde, 2476.  
 Lamb, R., 800.  
 Lambert, 292, 2787.  
*Lambert, B., see N. Sidgwick.*  
*Lambert, C., see H. Diamanti.*  
 Lambert, C., 2917.  
 Lambert, F., 2574, 2854.  
 Lambert, H., 2864.  
 Lambert, J., 2660, 2919.  
 Lambert, M., 2425, 2642.  
 Lambert, P., 672, 2923.  
 Lambert, T., 2736.  
 Lambert, V., 2787.  
 Lambilly, P. de, 945, 985  
 Lamble, 2765.  
 Lambotte, 1850.  
*Lambris, G., see O. Rau.*  
 Laming, R., 1011, 1104, 1109.  
 Lamm, C., 1637, 1829, 2973.  
 Lamoisse, H., 2698.  
 Lamoreaux, W., 1027.  
 Lamoreaux, W., and C. Renwick, 1027.  
 Lamort, E., and M., 2766.  
*Lamort, M., see E. Lamort.*  
 Lamort, M., 268.  
 Lamotte, H., 2412.  
 Lampl, 2750.  
 Lamplough, F., 2660.  
 Lamson, J., 2850.  
 Lamy, 2902.  
 Lamy, A., 1857.  
 Lamy, E., 673.  
 Lamy, M., 2678, 2716.  
*Lamy, P., see J. Hutinet.*  
*Lancaster, F., see A. Charles.*  
 Lance, D., 86, 1789, 2626, 2642, 2643, 2647, 2650, 2653, 2660, 2921.  
 Lance, D., and E. Elworthy, 2406.  
 Lance, D., and V. Elworthy, 945.  
*Lance, R., see C. Schrager.*  
*Lance, R., see Shrager.*  
 Land, C., 2739.  
 Landauer, E., 2947.  
 Landell, H., 564, 592.  
 Landenberg, A., 239.  
 Landerer, X., 1591, 1887.  
 Landin, J., 673.  
 Landis, E., 1056.  
 Landis, W., 673, 694, 703, 847, 869, 899, 925, 935, 937, 1006B, 1207.  
 Landmark, 298.  
 Landmark, H., 197, 209, 310, 2425, 2426.  
 Landolph, F., 2514.  
 Landolt, A., 2465.  
 Landolt, H., 713, 1059, 2403, 2447, 2490, 2496, 2498, 2500, 2507, 2508, 2509.  
 Landolt, H., and H. Jahn, 2386, 2433,

- 2441, 2456, 2491, 2499, 2502, 2504, 2505, 2515.  
 Landrin, P., 2978.  
 Landrum, R., 2998.  
 Landsberg, 1086.  
 Landsberg, L., 3007, 3013.  
 Landshoff, *see* *Chemische Fabrik Grünau*.  
 Landshoff, *see* *Chem. Fabrik Grünau, Landshoff & Meyer*.  
 Landshoff, *see* *J. Lifschütz*.  
 Landshoff & Meyer, *see* *Chem. Fabrik Grünau*.  
 Landsiedl, A., *see* *M. Bamberger*.  
 Lane, *see* *Lacombe-Lane*.  
 Lane, E., and W. Pettie, 2898.  
 Lane, K., and O. Lubatti, 2516.  
 Lane-Fox, 101.  
 Lanfrey, J., 1803.  
 Lanfrey, J., and J. Renard, 1629, 1803, 1804, 1872, 2973.  
 Lang, Bridge & Wood, 227, 3066.  
 Lang, F., 1004.  
 Lang, J., 751, 834, 2414.  
 Lang, W., 2822, 2820, 2910.  
 Lang, W., and T. Allen, 1051.  
 Lang, W., and C. Carson, 1026.  
 Langbein, 727.  
 Langbein, H., *see* *F. Stohmann*.  
 Langdell, G., and M. Root, 2861.  
 Lange, *see* *Selwig*.  
 Lange, 242, 243, 345.  
 Lange, A., 1095.  
 Lange, B., *see* *J. Selwig*.  
 Lange, D., *see* *H. Elworthy*.  
 Lange, G., 242, 264.  
 Lange, H., 230, 234, 530, 660.  
 Lange, H., and C. Ruppel, 2560.  
 Lange, H., and G. Walther, 2773, 3068.  
 Lange, O., 2681.  
 Lange, W., *see* *W. Borsche*.  
 Lange, W., 230, 524.  
 Langenheim, 2866.  
 Langenscheidt, F., 1715, 2366.  
 Langer and Meyer, 710.  
 Langer, C., and V. Meyer, 673, 1059.  
 Langgaard, A., 2411, 2422.  
 Langhans, A., *see* *H. Pringsheim*.  
 Langhans, R., 78, 97, 1114, 2595, 2626, 2647, 2650.  
 Langlet, N., 3072.  
 Langlois, C., 2799, 2861, 2919.  
 Langlois, P., and L. Thomassin, 1237.  
 Langmuir, I., 32.  
 Langscheder Walzwerk u. Verzin-  
 kereien Aktien Gesellschaft, 2526.  
 Langston, H., 2736.  
 Langton, H., *see* *A. Dunstau*.  
 Langville, L., 299.  
 Langwell, and Power-Gas Corpora-  
 tion, 2993.  
 Lanible, A., *see* *H. Broadhurst*.  
 Lanjarrois, 2836, 2886.  
 Lankow, F., 458.  
 Lannoy, 1810.  
 Lannoy, E., & Co., 1592.  
 Lannoy, J. de, *see* *J. De Lannoy*.  
 Lannoye, A., 299.  
 Lanry, E., 2902.  
 Lansdale, R., 442.  
 Lansing, R., 2761.  
 Lany, *see* *Dun Lavy*.  
 Lanzendorfer, G., 234.  
 Laporte, 2495.  
 Laporte, E., 2910, 2919.  
 Laportl, 2801.  
 Lapraik, W., *see* *W. Russel*.  
 Lapschin and Tischenowitsch, 2448.  
 Lapworth, A., *see* *J. Ferns*.  
 Lapworth, A., 2516.  
 Lapworth, A., and F. Kipping, 2521.  
 Laquis, O., E. Pichery and A. Doucet,  
 1786.  
 Larcher, A., *see* *W. Wentworth*.  
 Lardier, 2787.  
 Large, C., 947.  
 Larguier des Bancelis, J., 48.  
 Larison, E., 1073, 1294.  
 La Rive, A. de, 1058, 1103.  
 La Rive, A. de, and F. Marset, 1103.  
 Larkin, J., 959.  
 Larkin, J., *see* *W. Smith*.  
 LaRoche, *see* *Hoffmann-La Roche*.  
 Laroque, H., 2788.  
 Larsen, *see* *A. Sinding-Larsen*.  
 Larsson, A., *see* *F. Schauman*.  
 LaSala, P. de, 2600.  
 Lascar, O., *see* *M. Wunder*.  
 Lasche, A., *see* *C. Schroeder*.  
 Laschcs, 2484.  
 Lasimore, 2808.  
 Laskowsky, 2410.  
 Lasky, J., and R. Berthon, 2881.  
 Lasne, H., *see* *F. Benker*.  
 Lasnier, J., *see* *E. Hildt*.  
 La Soie Artificielle, *see* *Soc. Anon.*  
*Francaise La Soie Artificielle*.  
 La Soie Artificielle du Nord, 2653.  
 Lassaigne, 390, 2805.  
 Lassaigne, J., 413, 1588, 2383, 2787,  
 2806.  
 Lassar-Cohn, 198, 310.  
 Lassere, A., 2445, 2467.  
 Lassieur, A., 2401.  
 Lassimonne, *see* *Firman*.  
 Lassimore, *see* *Firmin*.  
 Lassimore, 2822.

- Lassloffy, A., see A. Woolner.*  
*Laszlo, E., see G. Zemplén.*  
 Latapie, A., 2632.  
 Later, E., 2584.  
 Latham, A., 2704.  
 Latham, A., and J. Nourbourn, 2581.  
 Latham, J., 1619.  
 Latham, W., 2891.  
 Latour, R. de, 2787.  
*LaTourette, H., see C. Joyce.*  
 Latschinoff, P., 2521.  
 Lauber, 65.  
 Lauber, E., and R. Neher, 2587.  
*Laudien, E., see C. Schraube.*  
 Laur, 2164.  
 Lauer, J., 1621.  
 Laufer, L., 1265.  
 Lauffman, R., 2609.  
 Laufman, R., 310.  
 Laufmann, R., 3005.  
 Laujorrais, P., 2684, 2866, 2904.  
 Laukmamer, 1635.  
*Launay, see A. Maze-Launay.*  
*Laundy, A., see A. Hollands.*  
 Lauraguais, 2502.  
 Lauras, C., 2789.  
 Laureau, G., 2601.  
 Laureau, J., 2773.  
*Laurent, see F. Bracq-Laurent.*  
 Laurent, A., 2470, 2511.  
*Laurent, F., see T. Schloesing.*  
 Laurent, E., 398, 2479.  
 Laurent, R., 2864.  
*Laurie, see Burton.*  
 Laurss, M., 2787.  
 Laury, N., 2562.  
*Lauste, E., see J. Pletts.*  
 Laval, C., 227, 2575.  
 Laveine, 2825.  
 Lavender, R., J. Richards and D. Williams, 1309.  
 Laveth, H., and C. Rand, 672, 693.  
 Lavoisier, 665.  
 Lavoisier, A., 725.  
 Law, 2820, 2829.  
 Law, D., 183, 414.  
 Law, H., 2514.  
 Law, J., 2835.  
 La Wall, C., 2516.  
 Lawes, J., and J. Gilbert, 692.  
 Lawrence, J., 253, 2409.  
 Lawrence, W., 660.  
*Laws, W., see W. Snelling.*  
 Lazarus, B., 2614.  
*Lazell, H., see A. Barr.*  
 Lea, A., 417.  
 Lea, C., 1855, 2803, 2820, 2822, 2823, 2824, 2825, 2869.  
 Lea, M., 1619, 2383, 2815, 2818, 2825, 2826, 2828, 2831, 2832, 2833, 2834, 2835, 2836, 2837, 2839, 2840, 2841, 2842, 2843, 2844, 2845, 2846, 2847, 2851, 2864, 2902, 2916.  
 Lea, M., and H. Wortley, 2845.  
 Leach, A., and H. Lythgoe, 2406.  
*Leach, F., see H. Crowther.*  
 Leach, F., 3002.  
 Leachman, 2824.  
 Leadbetter, C., 2739.  
 Leahy, T., 2818.  
 Leak, E., and T. Wilson, 2710.  
 Leake, 2818.  
 Leaper, C., 2780.  
 Leaper, J., 2801.  
 Learoyd, S., 2712.  
 Learoyd, S., and E. Bluemel, 2677, 2678.  
*Leary, C., see W. Bartholomew.*  
 Leather and Leatherette Co., 2604.  
*Leatherette Co., see Leather.*  
*Leavenworth, C., see T. Osborne.*  
*Leaver, H., see D. Chambers.*  
 Lebach, H., 2627, 2652, 2659, 2773, 3052.  
 Lebbe, A., 2422.  
*Lebeau, P., see H. Moisson.*  
 Lebedeff, A., 471.  
 Lebel, 2925.  
*Lebel, H., see J. Philipps.*  
 Le Bel, J., 2450.  
 Le Bel, J., and W. Greene, 2439.  
*Lebert, F., see C. Villedieu.*  
 Lebie dzinski, 2854.  
 Libiedzinski, P., 2858.  
*Le Blanc, see Leblanc.*  
 Leblanc, 673, 693, 1029, 1062, 1085, 2502.  
 LeBlanc and Eschmann, 673.  
*Leblanc, A., see L. Peusfaillit.*  
 Leblanc, C., 1059.  
 Leblanc, F., 1590.  
 LeBlanc, H., 717.  
*LeBlanc, M., see W. Nuranen.*  
 Leblanc, M., 837, 900.  
 LeBlanc, M., and M. Eschmann, 935.  
 Leblanc, M., and C. Krauss, 1108.  
 LeBlanc, M., and W. Nuranen, 673, 704, 712.  
 LeBlond, N., 2687.  
 Lebreil, F., and R. Desgeorge, 2761, 2762.  
 Le Brocguay, L., 2052.  
*Lebrun, see Carnoy.*  
 Le Cam, A., 2788.  
*Le Camphre, see Soc. Anon. Le Camphre.*  
 Lecesne, N., 927.  
 Lechartier, G., 710, 961.

- Le Chatelier, see Dufur.*  
*Le Chatelier, see Mallard.*  
 Le Chatelier, 1064, 1142.  
 Le Chatelier, H., 402, 673, 898, 1016.  
 Le Chatelier, H., and B. Bogitch, 673, 731, 795, 806, 935.  
 Lecher, E., and J. Perntner, 2453.  
 Lechler, A., 2685.  
 Leckie, G., 1030.  
 Leclair, C., 2632, 3064.  
*Leclerc, see Maille.*  
*Leclerc, see Soc. Leclerc.*  
 Leclerc, 2793.  
 Leclerc, A., 962.  
*Leclerc, G., see A. Mabilie.*  
 Leclerc, V., 2787.  
 Lecocq, A., 2589.  
 Lecocq, E., and H. Vandervoort, 1016.  
 Lecoeur, A., 77, 86, 2642, 2648, 2654.  
 Lecoeur, A., and P. Rudolf, 77.  
 Lecomte, A., 2419.  
 Lecomte, O., 2652.  
 Lecomte, 713.  
 Lecomte & Co., 463.  
 Lecoq de Boisbaudran, 673.  
*Le Crinoid, see Societe Anonyme Le-Crinoid.*  
 Lecuyer, H., 2787.  
 Leder, P., 2576, 2585, 2673.  
 Lederer, 3042.  
*Lederer, A., see E. Lederer.*  
 Lederer, A., 2443.  
 Lederer, A., and E., 281, 310.  
 Lederer, B., 2714.  
*Lederer, E., see A. Lederer.*  
 Lederer, E., and A., 2555, 2643.  
 Lederer, L., 132, 2541, 2543, 2624, 2632, 2643, 2753, 2773, 2878, 2999, 3006, 3009, 3012, 3013, 3019, 3022, 3027, 3029, 3034, 3036, 3041, 3046, 3051, 3052, 3056, 3059.  
 Ledergerber, J., and J. Bauer, 2598.  
 Lederkitt Ind. Gesellschaft., 2579.  
*Ledion, J., see V. Roger.*  
 Ledoux, L., 1327.  
*Leduc, Heils et Cie, see Societe.*  
 Leduc, Heitz & Co., 3056, 3057.  
 Leduc, A., 673, 692, 693, 711, 714, 715, 1016, 1059.  
 Le Duc, A., 2437, 2496, 2498, 2500, 2502, 2506.  
 Leduc, L., and H. Jacquemin, 2614, 2626, 2650, 3068.  
 Leduc, L., H. Jacquemin and Soc des Soieries de Maransart, 92.  
*Lee, see C. Tennant-Lee.*  
 Lee, 293.  
 Lee, A., and A. Beyer, 673.  
 Lee, C., 299.  
 Lee, H., 2726.  
 Lee, H., E. Walker, H. Dutcher and E. Haggen, 673, 847.  
*Lee, J., see G. Sealey.*  
 Lee, J., 1011, 2659, 2741.  
*Lee, T., see E. Halbleib.*  
 Leech, B., 590.  
 Leech, C., and T. Neal, 1075.  
*Leege, see C. Grosse-Leege.*  
 Leeman, P., 3043.  
*Leemans, P., see A. Dubosc.*  
 Leemans, P., 2525, 3013.  
 Lees, C., 1722, 2403.  
 Lees, C., and J. 'etavel, 2952.  
 Lees, S., 2919.  
*Leeth, E., see R. Rappold.*  
*Leeuw, de, see De Leeuw.*  
 Leeuw, H. de, 1035, 1036.  
 Leeves, M., de and J. Halmi, 460.  
 Le Faguays, 2683.  
 LeFaguays, F., 2743.  
 Lefarge, J., 2718.  
 Lefberg and Georgieski, 416.  
 Lefebvre, 847.  
 Lefebvre, V., 2757.  
 Lefebvre, A., 299.  
 Lefelmann, F., 958.  
 Lefeuviere, J., 2750, 2917.  
 Lefevre, 532, 2670.  
 Lefevre, J., 1016, 1632.  
 Lefevre, L., 2642, 3062, 3066, 3076, 3078.  
 Lefevre, L., and E. Blondel, 227, 532.  
 Lefevre, L., and F. Brion, 2600.  
*Lefevre, P., see G. Boulais.*  
 Lefevre, P., 2461.  
*Lefferts, M., see J. Stevens.*  
 Lefferts, M., 1413, 2686, 2690, 2697, 2701, 2710, 2736, 2740.  
 Lefferts, M., and W. Carpenter, 2730.  
 Lefferts, M., and J. Hyatt, 2745, 2748.  
 Lefferts, M., and J. Stevens, 2696, 2892.  
 Leffman, H., 2412.  
 Le Fibrocol, 3079.  
*Legeay, A., see J. Drieu.*  
 Legeay, A., 2600.  
 Leger, E., 1059, 2517.  
*Legg, D., see C. Weismann.*  
 Legge, A., 1072.  
 Leggo, W., 2910.  
 Legrand, 299.  
 Legrand, E., 76, 79, 2637, 2654.  
 Le Gray, 2807, 2811, 2824, 2828.  
 Le Gray, G., 2801, 2806, 2812, 2815, 2818, 2821, 2834.  
 Le Grice, 2815.

- Leguier and Clerget, 1502.  
 Leheure, L., 1716.  
*Lehman, see Pfeiffer.*  
 Lehman, E., 310.  
 Lehman, E., and P. Knoche, 2916.  
 Lehman, F., 348, 2592, 2593, 2952, 2953.  
 Lehman, F., and J. Stocker, 2752.  
 Lehman, P., 1063.  
*Lehman, V., see J. Stocker.*  
*Lehmann, see K. Jellinek.*  
*Lehmann, see N. Zuntz.*  
 Lehmann, 299, 705.  
 Lehmann and Mori, 389.  
 Lehmann, A., 608.  
 Lehmann, C., IX.  
 Lehmann, C., and J. Walter, 985.  
*Lehmann, E., see A. Frank.*  
 Lehmann, E., 596, 2728, 2815.  
 Lehmann, E., and P. Knoche, 2841.  
 Lehmann, F., 1094, 2541, 3061.  
 Lehmann, F., and J. Stocker, 2584, 2762, 3031.  
 Lehmann, F., and J. Vogel, 348.  
*Lehmann, G., see J. Walter.*  
 Lehmann, J., 2946.  
 Lehmann, K., 282, 2491.  
 Lehmann, L., 2675.  
 Lehmann, O., 1016.  
 Lehmann, P., 1075.  
 Lehmann, R., 2788.  
 Lehner, 1731, 2622, 2627.  
*Lehner, A., see F. Lehner.*  
 Lehner, A., 1735, 2557, 2583, 2878.  
 Lehner, F., 89, 90, 2622, 2632, 2644, 2681, 2750, 2878.  
 Lehner, F., and A., 3063, 3096.  
 Lehner, L., 2626.  
*Lehnert, H., see P. Jannasch.*  
 Leib, H., 2600.  
 Leibert, M., 2866.  
 Leidy, J., 1588.  
 Leigh, 507.  
*Leigh, E., see R. Burgess.*  
*Leighton, A., see W. Macnab.*  
 Leighton, A., 100.  
 Leinhass and Huelsenberg, 391.  
 Leinveber, A., 95, 271, 337, 2632, 2642.  
 Leipziger Tanier Manier, A. Grube, 2586.  
*Leisegang, A., see M. Winkelströter.*  
 Leisenberg, C., 310.  
*Leiser, R., see P. Ashenasy.*  
 Leiser, R., 2467.  
 Leitch, J., 995, 998, 1357, 1370, 1424.  
*Leith, E., see A. Rappold.*  
 Leith, H., 1030.  
*Leithauser, G., see E. Warburg.*  
*Lejeune, A., see C. Chevalier.*  
 Leland, J., 2900.  
*Le Large, see Lelarge.*  
 Lelarge, H., 900, 1203.  
*Lemaire, see Desmoulis.*  
 Lemaire, E., 673, 1004, 3060.  
 Lemaire, J., 2402.  
 Lemaire, M., 1042.  
 Lemaitre, H., 673, 1307, 1392, 1443.  
 Lemaitre, M., 1308.  
 Lemann, 2792.  
 Lemary, J., 2750, 2800, 2903.  
*Lemassena, T., see J. Stanley.*  
*Lemery, N., see N. Le Febre.*  
 Lemire, N., 1011.  
 Lemling, 2805.  
 Lemmermann, O., and A. Einecke, 921.  
 Lemmon, J., 460.  
 Lemoine, G., 2437.  
 Lemoine, J., 1592, 2980.  
 Lenard, P., 1059.  
 Lendenfeld, 2784.  
*Lenders, A., see C. Sovereign.*  
 Lenders, A., 425, 428, 446.  
 Lender, R., 2592.  
 Lenders, W., 452.  
 Lenel, R., 2745.  
 Lengfellner, 2392.  
 Lengfellner, K., 2618, 2678, 2698, 2709.  
 Lenhart, P., 2702.  
 Lenk, von, 556, 1593, 1594, 1595, 1596, 1597, 1598, 1601, 1602, 1607, 1616, 1617, 1641, 1701, 1787, 1934, 1943, 2083, 2922, 2925.  
*Lennepe, B. van, see C. van Duin.*  
 Lennhoff, C., 2412.  
 Lennox, R., 1370.  
*Lenz, W., see C. Clemm.*  
*Lenz, see E. v. Knapp-Lenz.*  
 Lenz, E., 2362.  
*Lenze, see Will.*  
*Lenze, F., see M. Freund.*  
 Lenze, F., and B. Pleus, 2325.  
 Leo, H., 673.  
 Leo, H., and E. Rimbach, 2515.  
 Leon, C., 1022.  
 Léon, G., 1132.  
*Leonard, C., see Z. Fiveash.*  
 Leonard, J., 660.  
 Leonard, M., 2958.  
 Leonard, N., 1016, 1033, 1036.  
 Leonard, N., and H. Smith, 2511.  
*Leonard, W., see J. Babcock.*  
 Leonard, W., 2701, 2982.  
 Leonhardt, 310.  
*Leonhardt, A., see Farbwerke Mulheim.*

- Leonhardt, A., 283.  
 Leoni, A., A. Pelizza and E. Stringa, 2417.  
 Lepage, 1585.  
 Lepage, P., 1592.  
 Lepape, A., *see* C. Moreau.  
 Lepel, F. v., 673, 693, 705.  
 Lepetit, Dollfuss & Gansser, 417, 604.  
 Le Petit, C., 2426.  
 Lepetit, R., 2773.  
 Lepine, G., 3023.  
 Lepine, R., and Flavard, 1016.  
 Lepine, R., and G. Guerin, 1016.  
 Lepsius, B., 944, 1059.  
 Lepsius, P., 944.  
 Lequeux, G., 2633, 3074.  
 LeRossignol, R., *see* F. Haber.  
 Leroux, A., 1518, 1705, 2324.  
 Leroux, H., *see* P. Breteau.  
 Leroux, L., *see* L. Nottelle.  
 Leroy, *see* Eycken and Leroy.  
 Leroy and Raspail, 390, 408.  
 Le Roy, 1006, 2693, 2902.  
 LeRoy, A., 2659, 2745.  
 Leroy, F., 2555, 2624.  
 Leroy, G., 1340, 2518, 2557, 2744.  
 Leroy, G., and F. Walter, 2624.  
 Leroy, G., & Co., 2589.  
 LeRoyer, A., *see* A. Bonna.  
 Lesage, L., 2647, 3080.  
 Lesage, P., 398.  
 Leschly-Hansen, K., 310.  
 Lescocur, H., 2514.  
 Les établissements Poulenc Freres, 2464.  
 Leslie, *see* Swan.  
 Leslie, E., 2425.  
 Leslie, J., *see* J. Swan.  
 Lespian, R., 2422.  
 Lespialt, 2813, 2823.  
 Lessage, 2790.  
 Lessard, G., 2621.  
 Lessere and Vallod, 1572.  
 Lester, J., 233, 299, 512.  
 Lesuer, 2787.  
 Les Usines Electriques de la Lonza, 853.  
 Letaille, A., *see* F. Billing.  
 Letrange, L., 1081.  
 Leu, B., and V. Sjostrum, 2716.  
 Leuchs, J., 2472.  
 Leuchs, K., 673.  
 Leuchs & Co., 215.  
 Leulier, A., 428.  
 Leumann, R., 2916, 2919, 2921.  
 Leupold, H., *see* A. Michael.  
 Leuschel, R., 1879.  
 Leuscher, E., and W., 2586, 2613, 2693.  
 Leuscher, W., *see* E. Leuscher.  
 Levack, A., *see* J. Murray.  
 Levai, J., 2789.  
 Levallois, 76, 92, 390.  
 Levallois, A., 47, 1759, 2655.  
 Levenstein, I., *see* C. Schreiber.  
 Lever Bros., *see* Harger.  
 Lever Brothers, *see* J. Hager.  
 Lever, R., 730.  
 Leverd, A., 2600.  
 Levey, H., 3045.  
 Levi, C., *see* M. Barriucelly.  
 Levi, J., 2916.  
 Levi, L., *see* C. Schroeder.  
 Levi, M., *see* Carrara.  
 Levi, M., 1038, 2404.  
 Levi, M., and E. Migliorini, 944.  
 Levi, M., E. Migliorini and G. Erco-  
 lmi, 1294.  
 Levi, R., 2550.  
 Levi, T., *see* Schroeder.  
 Levin, S., 2736.  
 Levine, B., 343.  
 Levinstein, J., *see* G. Schreiber.  
 Levinstein, J., 1369.  
 Levoff, A., *see* G. Lunge.  
 Levy, 673, 2652, 2837.  
 Levy and Ernst, 2650.  
 Levy, A., 2836.  
 Levy, C., 2717, 3079.  
 Levy, J. de, 2595.  
 Levy, L., 2556, 2612, 2709.  
 Levy, M., 2750, 2912.  
 Levy, N., 2449, 2450.  
 Levy, R., *see* L'air Liquid, etc.  
 Levy, R., *see* Green.  
 Levy, R., and A. Helbronner, 687.  
 Lewakowsky, 243, 264.  
 Lewes, V., 2926.  
 Lewin, 1851.  
 Lewin, J., 561, 1631, 1785, 2536, 2969,  
 2971, 2974.  
 Lewin, L., *see* E. Mislin.  
 Lewin, L., 2411, 2650.  
 Lewin, S., and A. Blumenthal, 2620.  
 Lewinsohn, M., and S., 2610.  
 Lewinsohn, S., *see* M. Lewinsohn.  
 Lewinsohn, S., and W., 2619.  
 Lewinsohn, W., *see* S. Lewinsohn.  
 Lewis, *see* Hake.  
 Lewis, *see* Ramsey.  
 Lewis, 701, 2971.  
 Lewis, C., 2400.  
 Lewis, F., *see* T. Farmer.  
 Lewis, G., 2498, 2506, 2594, 2726.  
 Lewis, G., and E. Adams, 673, 694.  
 Lewis, G., and A. Edgar, 673, 900.  
 Lewis, G., and M. Randall, 1034.

- Lewis, J., 2910, 2958.  
*Lewis, R., see Hake.*  
*Lewis, R., see C. Hake.*  
 Lewis, R., 2971.  
 Lewis, S., 51.  
 Lewis, S., and A. Blumenthal, 2610.  
 Lewis, W., 32, 1362, 2426.  
 Lewis, W., and W. Green, 2557.  
*Lewisson, L., see F. Claus.*  
 LeWita, H., 3066.  
*Lewite, A., see M. Jacoby.*  
*Lewite, A., see W. v. Kaufmann.*  
 Lewthwaite, J., 2611, 2661, 2687.  
 Lewy, 2422.  
 Ley, 2854.  
 Ley, H., 2473, 2500.  
 Ley, N., 2451, 2473.  
 Leyendecker, H., 1208.  
 Leygue, I., and P. Champion, 1620.  
 Leykauf, T., 158.  
 Leyland, E., 1011.  
 Leysieffer, G., 1812.  
 Leziard, P., 2707.  
 Lezinsky, G., 1818, 1825, 2254.  
 Lheure, L., 2968.  
 Lhime, I., 1239, 1240.  
*L'Hôte, L., see G. Bergeron.*  
 Lhuilier, R., and L. Maurice, 329, 2599.  
 Li, Y., 2762.  
 Liardet, J., and T. Donnithorne, 1082.  
 Libavius, 1007.  
 Libbey, H., 2574.  
 Libbrecht, C., and M., 2555.  
*Libbrecht, M., see C. Libbrecht.*  
 Liberi, G., 926.  
 Libiedzinski, 2851.  
 Libs, H., 2764.  
 Lichtenberg-Madsen, D., 2748, 2908, 2917.  
 Lichtenhahn, T., 2425, 2426.  
 Lichtenstein, I., 310.  
 Lichty, D., 1124, 1125, 1312.  
*Lickfelt, H., see R. Greulich.*  
 Liddiard, G., 960.  
 Lidholm, H., 935.  
*Lidholm, J., see Dettifoss Power Co.*  
 Lidholm, J., 921, 932, 1006B, 3023.  
 Lidholm, J., and Dettifoss Power Co., Ltd., 935.  
 Lidoff, A., 711, 721.  
 Lidov, A., 673.  
 Lidstone, F., 2282.  
 Lie, E., 935, 1006B.  
*Lieb, H., see A. Zinke.*  
 Lieben, A., 2438, 2500, 2505.  
 Lieben, A., and G. Janacek, 2453.  
 Lieben, A., and F. Loidl, 2452.  
 Lieben, A., and A. Rossi, 2438, 2451, 2486, 2487, 2505.  
 Lieben, A., and S. Zeisel, 2439, 2455, 2486.  
 Liebenthal, E., 2495.  
 Lieber, H., 2687, 2742, 3080.  
 Lieber, K., and I. Walz, 814.  
*Lieberg, H., see J. Lieberg.*  
 Lieberg, J. and H., 2740.  
 Liebermann, C., 64, 66, 1016, 2773.  
 Liebermann, C., and O. Hoermann, 2987.  
 Liebermann, C., and S. Lindenbaum, 2773.  
 Liebermann, C., and F. Schwarzer, 2773.  
 Liebermann, L., 673, 2455.  
 Liebert, 1623, 2801, 2809, 2812, 2830, 2854.  
 Liebert, A., 2817.  
 Liebert, E., 2385, 2509.  
 Liebhaber, B. de, 2564.  
 Liebhaber, G., 2564.  
 Liebig, 1570.  
 Liebig, J. von, 673, 943, 1817, 2511, 2519.  
 Liebig, J., and J. Pelouze, 1862.  
 Liebig, J., R. Blanchet and Sell, 2519.  
*Liebig, M., see K. Eichhorn.*  
 Liebig, M., 1078, 1079, 1080, 1230, 1348, 1355.  
 Liebig, R., 1081.  
 Liebig, T., 1267.  
*Liebmann, see Erste Offenbacher Gelatine-Folsen.*  
*Liebmann, A., see F. Davis.*  
*Liebmann, A., see J. Dewar.*  
 Liebmann, A., 225.  
 Liebmann, A., and W. Kerr, 225.  
 Liebrecht, E., 1080.  
*Liebschutz, see Morton-Liebschutz.*  
*Liebschutz, M., see Morton Liebschutz.*  
*Liebschutz, see Pellett.*  
 Liechti and Suida, 113.  
 Liechti, and E. Truminger, 935.  
 Liechti, L., and W. Suida, 65, 115.  
 Liechti, P., and E. Ritter, 673.  
 Liedbeck, 567.  
*Liedbeck, A., see A. Nobel.*  
 Liedbeck, A., 1640, 2031, 2093, 2111.  
 Liedbeck, F., 2943.  
 Liedbeck, P., 2555.  
 Liegel, 1365.  
*Lienau & Co., see Chem. Fabr. Uerdingen, etc.*  
 Lies, W., 452.  
 Lies-Bodart, 2449.  
*Liesche, O., see F. Beckmann.*  
 Liese, H., 310.



- Liesegang, 1619, 2809, 2811, 2814, 2821, 2837, 2851, 2857, 2858, 2868.  
 Liesegang, F., 534, 1816, 2802, 2854, 2859.  
 Liesegang, P., 2826, 2835, 2841, 2844, 2887.  
 Liesegang, R., 2780, 2805, 2808, 2812, 2816, 2839, 2840, 2850, 2852, 2877, 2916.  
 Liesegang, R., and E. Ferrier, 2802.  
 Liesenberg, C., 283.  
 Liess, W., and M. Maher, 452.  
 Lietzenmayer, A., 660.  
 Lifschütz, H., 1807, 1808.  
 Lifschütz, I., 1638.  
 Lifschütz, J., 278, 1638.  
 Lifschütz, J., and Chem. Fabrik Grünau, Landshoff, and Meyer, 251, 275.  
 Lifschutz, H., 1807, 1808.  
 Lifschutz, I., and Chemische Fabrik Grünau, 1638.  
 Lightfoot, G., 299.  
 Lightfoot, J., 2512.  
 Lightoller, C., 225.  
 Lignoid Fancy Article Manufacturing Co., 2667.  
 Ligny, H., 2681, 2693, 2719.  
 Lihme, I., 1082, 1107, 1119, 1192, 1339.  
 Lihme, I., and The Graselli Co., 1218.  
 Lilienfeld, 3050.  
 Lilienfeld, J., 686, 687.  
 Lilienfeld, L., see M. Jolles.  
 Lilienfeld, L., 23, 37, 92, 127, 232, 2394, 2487, 2538, 2583, 2608, 2613, 2637, 2650, 2671, 2680, 2693, 2769, 2773, 2895, 2898, 3013, 3023, 3045, 3054, 3057, 3060, 3064, 3068, 3071, 3077, 3078, 3079, 3080.  
 Lilienfeld, L., and Tedesko, 3078.  
 Lilienfeld, L., and G. Winterbottom, 2637.  
 Liljenroth, F., 673, 899.  
 Liljenstern, B., and L. Marchlewski, 716.  
 Lillie, S., 456, 480.  
 Lilliendahl, E., 2710.  
 Lillig, R., 2412.  
 Liman, 2787.  
 Limmer, F., 2877, 2878, 2879.  
 Limp, C., 847.  
 Linch, E., see B. d'Aubigne.  
 Lincoln, A., see Kahlenberg.  
 Lincoln, A., see L. Kahlenberg.  
 Lincoln, G., 2720.  
 Lindau, see Haselhof.  
 Lindauer, G., see M. Kohn.  
 Lindblad, A., 893, 920, 921, 927, 935, 1006B.  
 Linde, 689.  
 Linde, C., 1004.  
 Linde, C. von der, 2993.  
 Linde, F., 710.  
 Lindemann and Matten, 3063.  
 Lindenbaum, S., see C. Liebermann.  
 Lindener, see Bochum-Lindener.  
 Lindenmeyer & Co., 2422.  
 Lindenmeyer, G., 454.  
 Linder, E., see R. Carpenter.  
 Linder, F., 1855.  
 Linder, S., see H. Carpenter.  
 Lindet, L., 2417, 2455, 2476.  
 Lindet, M., 130, 2987.  
 Lindfors, T., see C. Kolbe.  
 Lindhardt, 310.  
 Lindner, 355, 2773, 2814.  
 Lindner, O., 2619.  
 Lindner, P., 468.  
 Lindner, S., see R. Carpenter.  
 Lindner, S., and H. Picton, 39.  
 Lindquist, B., see H. Bergstrom.  
 Lindquist, F., 847.  
 Lindsay, 198, 2834.  
 Lindsay, C., see H. Jones.  
 Lindsay, W., 2391, 2538, 2540, 2543, 2675, 2678, 2689, 3013, 3026, 3032, 3037, 3039, 3042, 3043, 3045.  
 Lindsay, W., and The Celluloid Co., 1790, 1793, 2537, 3050.  
 Lindsey and Tollens, 242.  
 Lindsey, J., see F. Weld.  
 Lindsey, J., and B. Tollens, 161, 201, 280, 299, 310.  
 Lindsley, M., see G. King.  
 Lindsley, M., see G. Peters.  
 Lindsley, M., 1634, 1829, 2962.  
 Linebarger, C., see J. Long.  
 Linebarger, C., 2502.  
 Linfoot, M., see S. Courtauld & Co.  
 Ling and Baker, 407.  
 Ling, A., see A. Board.  
 Ling, A., 468.  
 Ling, A., and J. Baker, 468.  
 Ling, A., and B. Davis, 482.  
 Ling, A., T. Rendle and E. Colbrook, 2750, 2906.  
 Lingner, K., 2773, 2777.  
 Link, G., and R. Avenarius, 2433, 2441, 2479.  
 Link, H., 2550.  
 Linke, R., 1640, 2982.  
 Linkmeyer, see Soc. Gen. de la Soie Artificielle Linkmeyer.  
 Linkmeyer, 74.  
 Linkmeyer, R., 82, 87, 89, 2631, 2633, 2650, 3074.

- Linkmeyer, R., and M. Pollak, 83, 3072.  
 Linne, H., 2602.  
 Linnekogel, H., 2693.  
 Linnemann, E., 2398, 2428, 2502, 2504, 2505.  
 • Linnemann, E., and C. Friedel, 2429.  
 Linnemann, E., and A. Siersch, 2429.  
 Linnemann, E., and V. von Zotta, 2429.  
*Lintert, see Moller.*  
 Lint, H., 1036.  
 Lintner, 390.  
 Lintner, C., 390, 361, 407, 420, 426, 469, 476.  
 Lintner, C., and G. Duell, 238, 391, 406, 469, 472, 473.  
 Lintner, C., and E. Kroeber, 482.  
 Lioret, H., 2736.  
 Lipinski, A., 673, 894.  
 Lipman, C., 673.  
 Lipman, J., 2602.  
*Lipp, A., see Lippmann & Co.*  
 Lipp, A., 2402.  
 Lipp, A., and E. Scheller, 2402.  
 Lipp, P., 2519.  
 Lippmann, E. von, 2423.  
 Lippmann, v. 262, 390, 2883.  
 Lippmann, E. v., 6, 134, 23, 392, 1007, 1209.  
 Lippmann, G., 2883.  
 Lippold, G., 2601.  
*Lipschitz, A., see E. Knecht.*  
 Lipski, J., 945.  
*Lisch, H., see T. Petry.*  
 Lissauer, R., 78, 2609.  
 Lisson, L., 2825.  
*List, E., see A. Wohl.*  
*List, M., see M. Jenett.*  
 List, R., 1055.  
*List & Co., see A. Klages.*  
 Lister, S., 2610.  
 Litchauer, V., 299.  
*Lithgow, J., see J. Byrom.*  
 Lithoid-Waarenfabr, 2689.  
*Little, see Walker.*  
*Little, A., see H. Mork.*  
 Little, A., 299, 310, 2999, 3058, 3062, 3078, 3079.  
 Little, E., 2703, 2741.  
*Littlebury, W., see R. Pickard.*  
 Littlefield, G., 2677, 2678.  
 Littmann, H., and R., 453.  
*Littmann, R., see H. Littmann.*  
 Littmann, S., 1260, 1349, 1390.  
 Littmann, Z., 1207, 1223, 1266, 1291.  
 Litynski, L., A. Rodakiewicz and F. Kurowski, 299. •  
 Litzenberg, J., 2537.  
 Litzendorf, J., 736.  
 Litzler, A., 2660.  
 Livache, A., 2464.  
 Liveing, C., and J. Dewar, 673, 713, 715, 1059.  
*Livermore, W., see E. Parrish.*  
 Liverseege, J., 2425, 2516.  
 Livett, S., 2917.  
 Livette & Findeisen, 3079.  
 Livingston & Doughty, Ltd., 2709.  
 Livonius, 2787, 2801.  
 Livonius, O., 1588.  
 Lizotte, J., 2687, 2703.  
 Ijubovski, S., 2569.  
 Ljungberg, E., 310.  
 Ljungh, H., 1098, 1124.  
*Llave, see J. de La Llave.*  
 Llein, 2791.  
 Llewellyn, I., and P. Spence and Sons, 792, 1027.  
 Llewelyn, 2817, 2825, 2830, 2860, 2885.  
 Llorenz, F., 2437.  
 Lloyd, C., 2843, 2845.  
*Lloyd, E., see M. Anthes.*  
 Lloyd, E., 2762.  
 Lloyd, G., 1590.  
 Lloyd, J., 2482.  
 Lloyd, J., and J. Wild, 2555.  
*Lloyd, L., see J. Sudborough.*  
 Lloyd, L., 170, 180.  
 Lloyd, M., 2594, 2727, 2985.  
 Lloyd, M., and Curtis & Harvey, Ltd., 2689, 2953.  
 Loader, J., 2982.  
 Loam, M., 1586.  
*Loas, see De Loas.*  
 Lobjois, J., 2741.  
 Lobry de Bruyn, C., 1016.  
 Lock, G., and G. Warnford, 1022.  
 Locke, E., 2739.  
*Lockwood, C., see J. Hyatt.*  
 Lockwood, C., 1630, 2384, 2672, 2720.  
 Lockwood, C., and J. Hyatt, 2718.  
 Lockwood, D., 2677, 2682, 2686, 2687.  
 Lockwood, W., 2706, 2707.  
 Locky, J., 1011.  
 Lockyer, N., 1016. •  
*Locquin, R., see L. Bouveault.*  
 Locquin, R., 2461.  
 Lodge, 2503.  
 Lodge, O., 1393. •  
 Loeb, J., 1774, 1775, 2467, 2468.  
 Loeb, W., 436, 673, 694, 2419.  
 Loeb, 389.  
 Loebel, W., 2999, 3062.  
*Loebi, E., see R. Scheuble.*  
 Löcherer, 2801.  
 Löffler, P., 791.

- Löhnis, F., and R. Moll, 935.  
 Loesch, P., 2854.  
 Loeschner, C., 2736.  
 Loeser, I., 1063.  
 Loeser, L., 2711.  
 Lötsch, E., *see* A. Scheunert.  
 Loew, *see* Naegeli.  
 Loew, E., 1260.  
 Loew, O., 402, 423, 673, 935, 944, 945.  
 Löw, O., and T. Bokorny, 399.  
 Loewe, B., 92, 2624, 2633, 2638.  
 Löwe, J., 1340.  
 Loewenberg, H., 2600.  
 Löwenherz, L., *see* A. Hoffmann.  
 Löwenherz, L., 2494, 2495.  
 Loewenherz, R., 673, 2383, 2386, 2462.  
 Löwenstein, E., 2716.  
 Löwenstein, S., 2464.  
 Loewenthal, 158.  
 Loewenthal, B., *see* O. Wheeler.  
 Loewenthal, E., *see* O. Wheeler.  
 Loewenthal, H., 2596.  
 Loewenthal, R., 2027, 2041, 3052.  
 Löwig, C., 2536.  
 Loewig, C., and A. Koelliker, 325.  
 Loewy and Klagsbrunn, 1374.  
 Loewy, A., and R. von der Heide, 2411.  
 Loewy, L., *see* G. von Georgievic.  
 Lof, E., 894.  
 Löffl, K., 310.  
 Loftus, J., 1392.  
 Logothetis, A., 2924.  
 Lohnis, E., 673, 925, 935.  
 Lohnis, F., and R. Moll, 675.  
 Lohman, E., *see* H. Franzen.  
 Lohmann, D., 1042.  
 Lohmann, P., 2439.  
 Lohmann, W., 2514.  
 Lohrisch, 345.  
 Lohrisch, H., *see* O. Simon.  
 Lohrisch, H., 345.  
 Lohse, 2837.  
 Lohse, O., 1624, 1758, 2843.  
 Loidt, F., *see* A. Lieben.  
 Lointer, A., 2558.  
 Loir, A., 1592, 1867.  
 Loir, A., and C. Drion, 1059.  
 Loiseau, O., 702.  
 Loiselet, J., 456.  
 Loisir, P., *see* H. Diamanti.  
 Loisir, P., 2003.  
 Loisy, E. de, 2426.  
 Lokesch, R., 2585, 2705.  
 Lokesch, E., & Son, 2687.  
 Lombard, E., 1085.  
 Lombard, R., *see* M. Thompson.  
 Lombardi, A., 2750, 2861, 2919.  
 Lome, D. de, 2946.  
 Lonce, A., and H. Chartrey, 2624.  
 Londe, 2738, 2758.  
 Londe, A., 2857, 2868.  
 Londei, L., 1006B.  
 London, J., and H. Bailey, 660.  
 Long, C., 2830.  
 Long, F., 299, 849.  
 Long, J. de, 2659.  
 Long, J., and C. Linebarger, 2479.  
 Long, W., 2808.  
 Longdon, E., 2697.  
 Longer-Shepherd, E., 2880.  
 Longi, A., 2315, 2317.  
 Longley, W., 299.  
 Longmate, W., 2741, 3060.  
 Longridge, J., 1637, 2978.  
 Longsdon, A., *see* E. Strange.  
 Longsdon, H., and J. Mahon, 456.  
 Longshaw, J., 225.  
 Lounes, C., 390, 411.  
 Loo, 2773.  
 Loock, 2414.  
 Loomis, B., 268, 272.  
 Loomis, E., 952, 2063, 2404, 2436, 2443, 2461, 2462.  
 Loos, G., 742.  
 Loose, A., *see* Chemische Fabrik auf Actien, vorm E. Schering.  
 Loose, A., and Chem. Fabr. auf Aktien vorm. E. Schering, 3010.  
 Loose, J., 2730.  
 Lopez, C., *see* C. Distler.  
 Lopez, C., 2701.  
 Lopez, D., and A. Swanson, 1504.  
 Loram, S., 726.  
 Lorient, A., 2709.  
 Lorch, C., 2743, 2745, 2747, 2909.  
 Lord, G., *see* J. Lord.  
 Lord, J., 226.  
 Lord, J., and J. Kinmond, 2771.  
 Lord, J., and G., 226.  
 Lorentz, K., 310.  
 Lorentzen, H., 1310.  
 Lorenz, 2502, 2822.  
 Lorenz, J., 2609.  
 Lorenz, L., *see* H. Herman.  
 Lorenz, O., 459.  
 Lorenzen, 2790.  
 Lorenzen, J. von, 2790.  
 Lorient, H., *see* A. Koehler.  
 Lorifer, *see* Laborde.  
 Lorifer, R., *see* R. Laborde.  
 Lorimer, J., 299.  
 Lorin, 2428.  
 Lorin, A., 2496.  
 Loring, *see* Ibarra-Loring.  
 Loring, F., 688, 2717.  
 Lortzing, O., 2854, 2949.

- Losev, G., see H. Freundlich.*  
 Lostumo, J., and A. Olander, 2568.  
 Lotka, A., 1101.  
 Lott, E., 2675, 2758.  
 Lotteri, F., 2627.  
*Lottermoser, A., see E. v. Meyer.*  
 Lottermoser, A., 2820.  
 Lottermoser, A., and Rothc, 2815.  
*Lotti, A., see Soc. Anon. d. Mines des Bormettes.*  
 Lougee, A., 2598.  
 Louguine, M., 2480.  
 Louguinine, W., 2433, 2453, 2487, 2507.  
 Louise, E., 2571, 2572.  
 Lounds, C., 2578.  
 Love, W., 2585.  
*Lovegrove, F., see C. Kingzett.*  
*Lovejoy, see Bradley.*  
*Lovejoy, D., see C. Bradley.*  
 Lovejoy, D., 849.  
 Loveland, F., 310.  
 Lovell, S., 2609, 2615.  
 Lovering, J., 1623.  
 Lovett, W., 1252.  
 Low, 2787.  
 Low, A., 1056.  
 Low, J., and H. Streeter, 2678.  
 Low, O., 1039.  
 Lowe, 230, 1347.  
 Lowe, C., 1299, 2395, 2749.  
 Lowe, C., and J. Gill, 1099.  
 Lowe, H., 225, 226, 228.  
 Lowe, J., 2716.  
 Lowenfeld, I., 2787.  
 Lowenstein, A., 896.  
 Lowenstein, K. zu, and F. Hauff, 1006B.  
*Lowenthal, see Knecht.*  
 Lower, J., 2697.  
 Lowinsky, J., 2904.  
 Lowndes, 895.  
*Lowndes, F., see W. Hodgkinson.*  
 Lownes, C., 413.  
 Lowry, 2345.  
 Lowry, D., 1239.  
*Lowry, T., see H. Armstrong.*  
*Lowry, T., see R. Bousfield.*  
*Lowry, T., see J. Kenyon.*  
 Lowry, T., 673, 684, 688, 1717, 2514.  
 Lowry, T., K. Browning, and J. Farmery, 1716, 1717.  
 Lowry, T., and C. Desch, 2514.  
 Lowry, T., and G. Donington, 2514.  
 Lowry, T., and H. Southgate, 2514.  
 Lowry, T., and V. Steele, 2514.  
*Loyer, see Bouchard & Loyer.*  
 Loyez, M., 2784.  
 Lubanski, 2787.  
*Lubatti, O., see K. Lane.*  
 Lubavin, 243.  
 Lubavin, N., 263.  
 Lubeck, C., and M. Payet, 2576.  
 Lubin, S., 2893.  
 Lubrenat, L., 3078.  
*Luca, see De Luca.*  
*Luca, see S. De Luca.*  
 Luca, S. de, 1593, 1701, 1863, 2368.  
 Lucas, E., 2901, 2910.  
 Lucas, R., 1113, 1134.  
*Lucas, W., see J. Dye.*  
 Luce, E., 2680.  
 Lucenay, P. de, 2827, 2848.  
 Luchs, 2801.  
 Luchs, F., 1594, 1694, 2573, 2789.  
 Luciani, J., 2958.  
*Lucius, see Farbwerke Hochst.*  
*Lucius, see Farb.vorm. Meister, Lucius and Bruning.*  
 Lucius, F., 1592.  
*Lucius & Bruening, see Farbwerke.*  
 Luck, A., 2943, 3058.  
 Luck, A., and C. Cross, 1640, 1702, 1710, 1898, 2021, 2094, 2251, 2944, 2959.  
 Luck, A., and A. Durnford, 135, 241, 288, 1900, 2014, 2015.  
 Luck, A., and C. Nichols, 2946, 2978.  
 Luck, E., 716, 718.  
 Luck, E., and F. Roberts, 1819.  
 Lucke, 2854.  
 Luckow, C., 847, 1059.  
*Lucks, see Schmoeger.*  
 Ludewig, C., 2586.  
*Ludewig, W., see J. Luetgens.*  
 Ludlow, J., and D. Mosher, 74.  
 Ludovici, G., 2678.  
 Ludovici, W., 267.  
 Ludwig and v. Zeynek, 673.  
 Ludwig, B., 2747, 2910.  
 Ludwig, E., 673, 704.  
 Ludwig, F., 1267, 1268.  
 Ludwig, H., 195.  
 Ludwig, J., 2577, 2694.  
 Ludwig, L., and E. Pfefferkorn, 2736.  
 Ludwig, N., 2678.  
*Luedecke, G., see F. Reiniger.*  
 Luedeking, C., 673.  
 Luedersdorff, F., 460.  
 Lüdke, E., 2708.  
 Lüdy & Co., 2535.  
 Lüdy, F., 2534.  
*Lüppo-Cramer, see also Lüppo-Cramer, H.*  
 Lüppo-Cramer, 2815, 2834, 2860, 2873, 2916.  
 Lüppo-Cramer, H., 2795, 2837, 2842, 2847.

- Luerssen, A., 310.  
 Lütgenan, C., and T. Schreus, 2624, 2693.  
 Lütgens, J., 1079, 1080, 1230.  
 Lütkehermölle, J., 2525.  
 Luetkehermoelle, J., and L. Wetz, and G. Ree, 2526.  
 Lüttgen, G., 1209, 1210, 1216, 1217, 1351, 1372, 1386, 3005.  
 Lüttgen, J., 1282.  
 Lüttke, H., 2536, 2579, 2612, 2852, 2856, 2893, 2921.  
 Lütty, F., 1212, 1217, 1239, 1240, 1271, 1280, 1281, 1282, 1360.  
 Lütty, F., and H. Niedenfuhr, 1211, 1282, 1289.  
 Luft, A., 2671, 2773.  
 Lugeol, 2801.  
 Luginin, W., 2441, 2457.  
 Luhmann, E., *see* C. Rommenholler.  
 Luhrs, O., 310.  
 Luit, J., *see* P. Thompson.  
 Luis, J., 2600.  
 Lukacs, A., 2582, 2618.  
 Lukacs, W., 225, 234.  
 Luke, J., 310.  
 Lumière, *see* Etablissements Lumière, etc.  
 Lumière, 2854.  
 Lumière et ses fils, 2891.  
 Lumière, and Seyewetz, 1036.  
 Lumière, A. et ses Fils, *see* Soc. Anon des Plaques et Papiers Photographiques.  
 Lumière, A., 413, 2634, 2879, 3051.  
 Lumière, A., et fils, 2021, 2624, 3042.  
 Lumière, A., and L., 2737, 2877, 2882, 3059.  
 Lumière, A., and L., and A. Seyewetz, 2862.  
 Lumière, A., and Seyewetz, 2400.  
 Lumière, L., *see* A. Lumière.  
 Lumière, L., 2736, 2737.  
 Lummen, M. de, 1078, 1079.  
 Lummer, O., 2495.  
 Lummer, O., and E. Brodhun, 2495.  
 Lumpff, H., *see* J. Schmidt.  
 Lumsden, C., *see* J. Hewitt.  
 Lumsden, J., and R. MacKenzie, 3022.  
 Lund, 2835.  
 Lund, K., 961.  
 Lundberg, J., 299.  
 Lunden, H., *see* C. Thorssell.  
 Lunden, H., 2500, 2502.  
 Lundholm, C., *see* R. Brown.  
 Lundholm, C., *see* A. Cronquist.  
 Lundholm, C., *see* W. Cronquist.  
 Lundholm, C., *see* P. Sohlman.  
 Lundholm, C., 1637.  
 Lundholm, C., and C. Hosie, 2552, 2963.  
 Lundholm, C., and Nobel's Explosives Co., 2538, 2958.  
 Lundholm, C., and J. Sayers, 170, 1637, 1854, 1900, 2943, 2946, 2954, 2958.  
 Lundi, F., and J. McMillan, 2678, 2685, 2745.  
 Lundin, E., 1055.  
 Lundström, A., 2729.  
 Lunge, 613, 726, 735, 818, 965, 968, 969, 1136, 1206, 1212, 1219, 1221, 1236, 1257, 1258, 1259, 1264, 1271, 1281, 1283, 1314, 1316, 1321, 1324, 1327, 1330, 1336, 1407, 1508, 1666, 1667, 1732, 2277, 2296, 2308, 2310.  
 Lunge and Berl, 1506.  
 Lunge and Isler, 1316.  
 Lunge and Marchlewski, 1545.  
 Lunge and K. Reinhardt, 1122.  
 Lunge and Rey, 1514, 1516, 1544.  
 Lunge, G., *see* G. Keppeler.  
 Lunge, G., *see* K. Reinhardt.  
 Lunge, G., 558, 710, 711, 713, 714, 716, 717, 718, 721, 788, 972, 1009, 1014, 1023, 1037, 1038, 1044, 1050, 1055, 1056, 1059, 1071, 1072, 1082, 1083, 1101, 1113, 1116, 1133, 1153, 1191, 1207, 1210, 1212, 1217, 1230, 1235, 1239, 1242, 1248, 1252, 1260, 1267, 1276, 1283, 1304, 1317, 1319, 1329, 1332, 1334, 1349, 1354, 1359, 1382, 1442, 1656, 1660, 1661, 1662, 1682, 1722, 1757, 1760, 1884, 1989, 1990, 2319.  
 Lunge, G., and W. Albenius, 1347.  
 Lunge, G., and E. Bänziger, 1048.  
 Lunge, G., and J. Bebie, 552, 581, 1656, 1658, 1673, 1674, 1685, 1722, 2291, 2292.  
 Lunge, G., and E. Berl, 673, 695, 704, 712, 719, 736, 900, 1257, 1258, 1335.  
 Lunge, G., and J. Dewar, 1030.  
 Lunge, G., and C. Gopner, 1113.  
 Lunge, G., and M. Isler, 1316, 1535.  
 Lunge, G., and C. Keane, 1055, 1056.  
 Lunge, G., and A. Levoff, 1334.  
 Lunge, G., and F. Lyte, 812.  
 Lunge, G., and L. Marchlewski, 961.  
 Lunge, G., and P. Naef, 1084, 1246, 1247, 1248, 1249, 1250, 1256, 1311, 1316.  
 Lunge, G., and G. Pollitt, 1101, 1103, 1106, 1116, 1131, 1137.

- Lunge, G., and G. Porschnew, 713, 716.  
 Lunge, G., and F. Raschig, 1258.  
 Lunge, G., and K. Reinhardt, 1101, 1102, 1116.  
 Lunge, G., and H. Rey, 1329.  
 Lunge, G., and A. Rittener, 1055.  
 • Lunge, G., and L. Rohrmann, 845, 1269.  
 Lunge, G., and F. Salathe, 1059, 1082, 1101.  
 Lunge, G., and E. Schmidt, 1322, 1323.  
 Lunge, G., and J. Smith, 1059.  
 Lunge, G., and Weintraub, 581, 1640, 1656, 1673, 1721, 1700.  
 Lunge, G., and E. Weintraub, 718.  
 Lunge, G., V. Meyer, and E. Schulze, 2453, 2475.  
 Lunge, R., 2417.  
 Lunger, C., see S. Herrick.  
 Lunn, G., 2560.  
 Lunt, G., 2958.  
 Lunt, J., see L. Roscoe.  
 Lun'yak, A., 2773.  
 Lupke, R., 1016.  
 Lupton, see Harcourt.  
 Lupton, S., 673, 894, 900.  
 Lusk, G., 348.  
 Lussac, see Gay-Lussac.  
 Lussac, see L. Gay-Lussac.  
 Lussana, S., see M. Beelati.  
 Lustgarten, S., 1855.  
 Lutati, see F. Vignolo-Lutati.  
 Lutgens, J., and W. Ludewig, 1073, 1079.  
 Luther, L., 2574.  
 Luthy, G., 451.  
 Lutrand, 1629, 2787.  
 Lutri, C., 2369.  
 Luty, F., 1071.  
 Luty, F., and H. Niedenfuhr, 673.  
 Lutschinin, E., see I. Kondakoff.  
 Luttke, H., 2663, 2795, 2980.  
 Luttringer, A., see O. Dubosc.  
 Luttringer, A., 299, 2758.  
 Lutz, C., 2534.  
 Lutz, G., 2649.  
 Lux, see Zelluloidkammfabrik in Prag.  
 Lux, J., 2983.  
 Luxbe, G., 3074.  
 Luxberg, H., 2633, 2650.  
 Luxberg, J., 3073.  
 Luxburg, G., 2643.  
 Luxburg, H., 89, 2644.  
 Luxmoore, W., 2603.  
 Luynes, V. de, 2438, 2505.  
 Lyell, J., see R. Bradshaw.  
 Lyle, M., 945.  
 Lyman, A., 330, 944.  
 Lyman, C., 1063, 1070.  
 Lyman, J., 452.  
 Lynn, A., 688, 700, 941, 1287.  
 Lyncke, H., see Mertens & Co.  
 Lyncke, H., 3074.  
 Lynes, W., 959.  
 Lynxhayr, Ltd., and W. Dickinson, 2642.  
 Lyon, D., and R. Keeney, 673.  
 Lyon, W., 2791.  
 Lyonel, see Clark-Lyonel.  
 Lyster, B., see M. Lyster.  
 Lyster, B., and M., 2406.  
 Lyster, M., and B., 2993.  
 Lyte, 2822, 2825, 2852.  
 Lyte, F., see G. Lunge.  
 Lyte, F., 2855.  
 Lyte, M., 1086, 2802, 2815, 2820, 2822, 2823, 2824, 2828, 2830, 2835, 2836.  
 Lyte, Maxwell, 2810.  
 Lythgoe, H., see A. Leach.  
 Lyttleton, W., and Triplex Safety Glass Co., 2684.  
 Maalouf, E., 2590, 2693.  
 Maas, O., 1276.  
 Maas, P., see H. Keller.  
 Maassen, A., see H. Klinger.  
 Mabery, C., and E. Hudson, 2468.  
 Mabery, C., and A. Smith, 1017.  
 • Mabile, see Soc. Leclerc.  
 Mabile, A., 2419.  
 Mabile, A., and G. Leclerc, 1779, 1789.  
 Mabley, W., 2827, 2866.  
 Macadam, R., and H. Walker, 1229.  
 Macagno, H., 1038.  
 Macaire, G., 2750, 2891.  
 Macalpine, T., see B. Atterbury.  
 Macar, J. de, 2964.  
 MacCartney, W., 2510.  
 MacCarty, W., and Perigord de Sagan, 2693.  
 Macauley, J., see J. Donald.  
 MacClelland, 2694.  
 MacClelland, J., 2788.  
 Macconel, W., 3066.  
 Macconnel, W., 226.  
 Macdonald, 3047.  
 MacDonald, B., 3061, 3062.  
 MacDonald, D., 2614.  
 MacDonald, G., 568, 1575, 1579, 1601, 1616, 1734, 1984, 1989, 2926.  
 Macdonald, J., 446.  
 Macdonald, T., 2737.  
 Macdonald, T., and F. Capps, 2733.  
 MacDougall, A., and H. Rawson,

1222.  
 MacDougall, 1072.  
 MacDougall, A., 696, 928.  
 MacDougall, A., and W. Howles, 696.  
 MacDougall, J., 1359.  
 Macewan, P., 2516.  
 MacFarland, H., and R. Jay, 338, 2767.  
 MacFarland, H., and R. Shoemaker, 151, 335.  
 MacFarlane, A., and H. Stanbury, 2718, 2764, 2774.  
 MacFayden, *see* Macfayden.  
 Macfayden, Allan, and F. Blaxall, 348.  
 Mach, C., 1637.  
 MacHargue, J., *see* J. Kastle.  
 Machenzie, C., 2907.  
 Macht, D., 2537.  
 Macht, D., and Fischer, 2537.  
 Machtoff, J., and K. Bosch, 946.  
 MacIntosh & Co., *see* F. Smith  
 Macintosh, J., 1591, 2573, 2605, 2739, 2980.  
 MacIntosh, J., and G. Rhodes, 2605, 2661, 2693.  
 MacIvor, R. F., Darlington, G. Paul, and J. Allan, 2993.  
 Mack, E., 698.  
 Mack, H., 463.  
 Mack, Harvey F., X.  
 Mack, L., 2948.  
 Mackay and Miller, 310.  
 Mackay Copper Process Co., 1310.  
 MacKay, C., 2709.  
 Mackay, G., and C. Ferguson, 673.  
 Mackay, J., 2708.  
 Macke, 2787.  
 Macke, J., 2791.  
 MacKean, W., 2595.  
 Mackenzie, 1370.  
 Mackenzie & McLauchlan, 1345.  
 Mackenzie, C., and The Institute for Physical and Political Geography, 2677, 2685, 2863, 2907.  
 Mackenzie, J., 790, 1031, 1223, 1290, 1300, 1396, 1356, 1369, 1370.  
 Mackenzie, J., and J. Gibson, 1280.  
 MacKenzie, R., *see* J. Lumsden.  
 Mackenzie, R., 1072.  
 Mackie, A., 2838, 2843, 2866.  
 Mackie, A., and C. Faure, 1621, 2162.  
 Mackie, S., 1621, 1631, 2009, 2010, 2032, 2053, 2076, 2945, 2978.  
 Mackie, S., and C. Faure, 1421, 1785, 2094, 2658, 2946.  
 Mackie, S., C. Faure, and G. Trench, 1621, 1721, 1785, 1874, 1911, 2031, 2982.  
 Mackinlay, 2821, 2833.  
 Mackintosh, J., and G. Rhodes, 1872.  
 Mackirdy, G., *see* H. Simpson.  
 MacLaurin, *see* Smith & MacLaurin.  
 Maclean, H., 2857, 2858, 2902.  
 MacLean, R., *see* V. Harding.  
 MacLeau, H., 2855.  
 MacMahen, 930.  
 MacMahon, 935.  
 MacMahon, F., 928, 929, 930, 1006B.  
 MacManus, J., *see* I. Rubie.  
 MacMichael, R., 2282.  
 Macnab, J., 2943, 2946, 2948.  
 Macnab, J., and R. Jenkins, 2958.  
 Macnab, W., and A. Leighton, 1795.  
 Macnab, W., and E. Ristori, 1797, 1919, 2986.  
 Macnair, 2825.  
 Macnamara, C., 2857.  
 Macneil, J., 2726.  
 MacNicol, 2819.  
 MacNider, G., 542.  
 Maconochie, 2810.  
 Macpherson, D., 2594, 2726.  
 Macquenne, L., 6, 238.  
 MacRoberts, G., 2953, 2969.  
 Mactear, J., 1071, 1208, 1212, 1247, 1248, 1252, 1322.  
 Macwalter, 2855.  
 Madaillon, A. de, 102, 2594, 2645.  
 Madaler, F. von, 2737.  
 Madden, H., and W. Gibbons, 2645.  
 Madden, H., and W. Housekeeper, 2633.  
 Maddos, 2835.  
 Maddox, R., 2822.  
 Maddox, 2785.  
 Maden, J., *see* W. Nuttall.  
 Maden, J., 2712.  
 Maderna, G., *see* G. Coffetti.  
 Madge, C., *see* E. Madge.  
 Madge, E., and C., 1299.  
 Madru, M., 2600.  
 Madsen, *see* D. Lichtenberg-Madsen.  
 Madsen, T., 2502.  
 Maercher, 450.  
 Maercker, M., *see* E. Schulze.  
 Maercker, M., 417, 451, 472.  
 Maercker, M., P. Behrend, and A. Morgan, 451.  
 Märksische Maschinene Fabrik, 1071.  
 Mads, 2855.  
 Maeule, C., 252.  
 Maffei, G., *see* F. Cantu.  
 Maffei, G., *see* G. Miglioretti.  
 Mage, L., 894.  
 Magelsen, N., 2766.

- Magendie, V., 1620.  
 Maggi, H., and G. Woker, 421.  
 Maggi, J., 2785.  
 Magnanino, G., and G. Malaginin, 718.  
 Magnasco, G., 2615.  
 Magne, J., 2425, 2426, 2910.  
*Magnes*, see *Magnes-Lahens*.  
 Magnes-Lahens, 413, 2787, 2801.  
 Magnier, and Brangier, 2518.  
*Magnier, P.*, see *A. Bghal*.  
*Magnier, P.*, see *C. Tissier*.  
 Magnier, P., 2414, 2518.  
 Magnier, P., and A. Brangier, 299, 2416.  
 Magnier, P., and L. Doerflinger, 1872, 1893, 1900, 2623.  
 Magnin, J., 1762, 2602.  
 Magnus, G., 1016, 1059, 1101, 1104.  
 Magnus & Co., 2668.  
 Magnus G. & Co., 2658, 2671, 2075.  
*Magnus, H.*, see *H. Pringsheim*.  
*Magnuson, H.*, see *C. Haug*.  
 Magny, 2825, 2837.  
 Magny, M., 2835, 2844.  
 Magra, U., 2673.  
*Mahaut*, see *Du Mahaut*.  
*Maher, M.*, see *W. Liess*.  
 Mahla, F., 1101.  
*Mahler, V.*, see *W. Mahler*.  
 Mahler, W., and V., 74.  
 Mahlsen, R., 798.  
*Mahon, J.*, see *H. Longsdon*.  
 Mahood, S., and D. Cable, 2993.  
 Mai, J., 673, 688.  
*Maier, J.*, see *R. Meyer*.  
*Maible, A.*, see *P. Sabatier*.  
 Maible, A., 916, 2467, 2488.  
 Maillert, 1016.  
 Maille and Leclerc, 2792.  
 Main, R., and W. Donald, 851, 986.  
*Main, W.*, see *O. Svele*.  
 Main, W., 2991, 3052.  
 Main, W., and A. Chaplet, 2658.  
 Mainer, 2782.  
*Mainsbrecq, G.*, see *G. Catala*.  
*Mainzer, J.*, see *F. Simeons*.  
 Maire, J., 2967.  
 Maische, L., 453.  
 Maisland, W., 2487.  
 Maison, 2825.  
 Maissen, P., 2521.  
 Maissin, 1635.  
 Maiziers, 869.  
 Majers, W., and R. Messel, 1132.  
 Majert, W., 1114, 1116.  
 Majerus, V., J. Errington, and A. Hammond, 747.  
 Majocchi, 1575, 1586.  
*Major*, see *Hanna*.  
 Majorana, P., 2579.  
 Makin, J., 299.  
*Makowetsky*, see *F. Haber*.  
*Malaginin, G.*, see *G. Magnanino*.  
 Malaigne, 2787.  
 Malbot, H., and L. Gentil, 2440.  
 Malcolm, J., 811.  
 Malcolm, R., 2682.  
*Malcolmson, N.*, see *W. McRae*.  
 Malcolmson, N., 299.  
 Malderen, 1620, 2886.  
 Malenkovic, B., 1710.  
 Malfitano, G., 438, 1768, 1772.  
 Malfitano, G., and A. Moschikoff, 438, 439, 445.  
 Malfitano, J., 2559.  
 Malgaigne, 2787.  
 Mahk, 2787.  
 Malinsky, F., 477.  
*Maliszewski, J.*, see *T. Hooman*.  
 Mallard, 1016, 1322.  
 Mallard and LeChatelier, 673.  
 Mallary, G., 299.  
 Mallet, A., 2555, 2894.  
 Mallet, E., and L. Friderich, 2500, 2502, 2504, 2506, 2507.  
 Mallet, M., 2978.  
 Mallett, R., and H. Scholefield, 1075.  
 Mallevre, A., 346.  
 Mallinson, H., 1931, 2289.  
 Mallmann, E., 2401.  
 Mallmann, F., 2869.  
 Mallmann, F., and C. Scolik, 2871.  
 Mallmann, W., 2442, 2479.  
 Mallock, A., 2702, 2919.  
 Mallonee, J., 2406.  
 Malmgren, S., 2514, 2521.  
 Malone, T., 2834.  
 Malosse, H., 2398, 2467, 2515, 2999.  
 Malsch, C., and C. Gilson, 1030.  
 Maltman, A., 77.  
 Malus, C., 1016.  
 Maly, R., 1016.  
 Maly, V., 921.  
 Malzac, M., 1025.  
 Mamchot, W., 2996.  
*Manasse, O.*, see *L. Claisen*.  
 Manasse, O., 2515, 2774.  
 Manby, E., 102.  
 Manclin, F., 2633.  
 Manchester Brewers' Assn., 1335.  
 Manchester Oxide Co., R. Clayton, J. Huebner, and W. Williams, 106.  
 Manchot, W., 673, 694, 1260, 1305.  
 Manchot, W., and J. Haas, 2996.  
 Manchot, W., and J. Herzog, 85.  
 Manchot, W., and F. Huttner, 694.



- Manchot, W. and K. Zechentmeyer, 712.  
*Mancini, J., see M. Raffo.*  
 Mandel, P., 2901.  
 Mandelberg, J., 3049.  
 Mandl, A., and F. Russ, 673, 720, 1261.  
 Mando, P., 2426.  
 Manfield, H., 2888.  
 Mangin, 234.  
*Mangin, L., see G. Bonnier.*  
 Mangin, L., 128, 326.  
 Manhattan Mfg. Co., 2660, 2687.  
*Manissadjian, B., see W. Merckens.*  
 Manissadjian, H., 1784, 2660, 3033, 3042.  
 Manivet, D., 3082.  
 Mankowsky, 1634, 2300.  
*Manley, J., see V. Veley.*  
*Mann, see H. Petschler.*  
 Mann, 2801.  
 Mann, C., 1587.  
 Mann, E., 2303.  
 Mann, E., and J. Heess, 611, 2067.  
 Mann, E., and T. Kirkton, 2985.  
 Mann, E., and C. Stacey, 2482, 2483.  
 Mann, F., M. Krüger and B. Tollens, 238.  
 Mann, H., 2570, 2707.  
 Mann, J., 2612.  
 Mannes, S., 2882.  
 Mannesmann, R., 2779.  
 Mannheim, 1475.  
*Manning, F., see E. Sweetland.*  
*Manning, P., see J. Ferguson.*  
 Manns, J., 2565.  
 Manoukian, M., 3062.  
 Manquat, J., 2633.  
 Mansbach, A., 1023.  
 Mansell, 1590, 2828, 2885.  
 Mansell, J., 2953.  
 Manser, F., 743, 747.  
 Mansfield, G., 2889.  
 Mansier, 62, 111, 2570.  
 Manter, E., 2675.  
*Mantrand, see Cari-Mantrand.*  
 Manuelli, 684.  
 Manuelli, C., 674, 931, 935.  
 Manuelli, C., and L. Bernadini, 1006B, 2552.  
 Manufacturing Chemists Association, 1529, 1546.  
 Manufakturern Gesellschaft N. N. Korsch, 2614.  
 Manuro, Y., 1306.  
 Manwaring, G., 2737.  
 Manzoff, C., 2409.  
*Maquenne, L., see P. Deherain.*  
 Maquenne, L., 184, 440, 473, 483, 711, 1010, 1708.  
 Maquenne, L., A. Fernbach, and J. Wolff, 474.  
 Maquenne, L., and W. Goodwin, 183, 185, 186.  
 Maquenne, L., and E. Roux, 431, 473, 482, 483.  
 Maracci, A., 399.  
*Maransart, see L. Leduc.*  
*Marantonio, M., see F. Giolitti.*  
 Marassi, P., 1011.  
 Marble, A., 2707.  
 Marboutin, F., and M. Molinie, 1050.  
*Marburg, E., see H. Speckeler.*  
 Marc, L., 2677, 2679, 2748.  
 Marcailhou, 2787.  
 Marcano, V., 419.  
 Marceau, T., 2917.  
 Marcelin, P., 1088.  
 Marcelin, P., and E. Ende, 1088.  
 Marcelin, P., and J. Saunders, 1391, 1392.  
 Marcet, 389.  
*Marcet, A., see E. Hesketh.*  
*Marcet, F., see A. de La Rive.*  
*March, F., see A. Haller.*  
 Marchand, 133, 201.  
 Marchand, C., 299, 310.  
 Marchand, E., 674.  
 Marchand, R., 97, 1016, 1059.  
 Marchand, R., and T. Scheerer, 1015.  
*Marchard, see Bachet.*  
*Marchlewski, L., see G. Lunge.*  
*Marchlewski, L., see B. Liljenstern.*  
 Marchlewski, L., 961.  
 Marchlewski, L., and B. Liljenstein, 961.  
 Marchner, P., 2562.  
 Marcillac and Sijournet, 2675.  
 Marcille, R., 1033, 1034, 1036, 2570.  
 Marck, van der J., 1696.  
 Marckham, G., 2838.  
 Marckwald, W., 2461, 2482.  
 Marckwald, W., and A. McKenzie, 2461, 2479.  
 Marco, J., 725.  
*Marconnet, G., see A. Saint-Beuve.*  
 Marcus, D., 2591, 2611.  
 Marcusson, J., 2526, 2569, 2570, 2571, 2774.  
 Mardles, E., A. Moses and W. Willstrop, 3041.  
*Mare, see De Mare.*  
 Mare, F. de, 1292, 2894.  
 Mare, F. de, N. Saunier, and G. Dambmann, 2510.

- Marechal, C., 2827.  
 Marechal, C., and C. Tessie du Motay, 2905, 2906.  
 Mareck, F., 710.  
 Marek, G., 460.  
 Marengo, P., *see* L. Pratis.  
 Marga, U., 1639, 2669, 2752.  
 Margoles, J., 923.  
 Margosches, 2657.  
 Margosches, B., 2658, 3063.  
 Margraf, 2657.  
 Margueritte, L., 10M, 1300.  
 Mariani, C., 1016.  
 Marie, A., 2502.  
 Marie, C., 1324.  
 Marie, C., and L. Bunel, 1294.  
 Marignac, 674.  
 Marignac, C. de, 1101, 1124, 1125.  
 Marignac, F. Kohlrausch, and D. Mendelceff, 1311.  
 Mariller, *see* Soc. Marillen.  
 Mariller, C., 2467.  
 Marimer, 2831.  
 Marin, A., 2552.  
 Marin, P., 1092, 2421.  
 Marino, G., *see* P. Marino.  
 Marino, L., and F. Gonnelli, 674.  
 Marino, P., 5, 1779, 2257, 2624, 2671, 2693, 2701.  
 Marino, P., and G., 78.  
 Marino, Q., *see* D. Whitehead.  
 Marino, Q., 2563.  
 Marion, 2798, 2901, 2921.  
 Marion, A., 2800, 2864, 2868.  
 Mariot, 2806, 2819.  
 Mark, E., 2780.  
 Markats, M. v., *see* H. Pringsheim.  
 Marke, 2793.  
 Markham, G., 2813, 2835.  
 Markl, 450.  
 Markoe, G., 2512.  
 Markownikoff, 1403.  
 Markownikow, W., and E. Eghis, 2502.  
 Markowsky, H., 674.  
 Marks, E., 299.  
 Marks, G., 1075, 2774.  
 Markwald, W., and E. Nolda, 2464.  
 Marle, D. wan, *see* D. van Marle.  
 Marlow, 2153.  
 Marlow, A., 1210.  
 Marlow, G., 2902.  
 Marmon, *see* Nordyke & Marmon.  
 Marohn, C., 2563.  
 Marot, R., 1113.  
 Marotta, D., 2762.  
 Marquardt, E., and H. Viertel, 698.  
 Marquardt, H., 2580.  
 Marquardt, L., 2474, 2477.  
 Marquart, *see* Chem. Fabrik Bettenhausen Marquart.  
 Marquart and Schulz, 77.  
 Marqueyrol, M., *see* A. Kochler.  
 Marqueyrol, M., 2986.  
 Marqueyrol, M., and D. Florentin, 1006, 2308, 2310, 2319.  
 Marquis, R., 674.  
 Marr, A., *see* J. Richardson.  
 Marr, C., 1583.  
 Marr, G., 1583.  
 Marr, R., 299.  
 Marre, F., 2570.  
 Marsac, de, *see* Soc. Nauton Freres & de Marsac.  
 Marsan, M., 2764.  
 Marsat, R., and M. Pourcheiroux, 2567.  
 Marschalk, 2564, 2709.  
 Marshall, A., 2464.  
 Marsden, 2991, 3052.  
 Marsden Co., 1805, 2617.  
 Marsden, F., 2988, 3052.  
 Marsden, J., 1040, 1076.  
 Marsden, J., A. Paul, and A. Trombles, 1063.  
 Marsden, M., 299, 572.  
 Marsh, E., and H. Cousins, 2521, 2522.  
 Marsh, J., 2521.  
 Marsh, J., and J. Gardner, 2514, 2521, 2524.  
 Marsh, J., and A. Hartridge, 2516.  
 Marsh, J., and R. Stockdale, 2532.  
 Marshall, 2059.  
 Marshall, A., 1317, 1371.  
 Marshall, C., and J. Wigner, 1865.  
 Marshall, D., *see* W. Ramsay.  
 Marshall, E., 2644, 2652.  
 Marshall, G., 299.  
 Marshall, H., 1294.  
 Marshall, P., *see* J. Copley.  
 Marshall, P., 228.  
 Marshall, W., *see* T. Purdie.  
 Marshall, W., 445.  
 Marshman, N., 2702.  
 Marsson, 2502.  
 Marston, R., 711, 895, 900, 912, 943.  
 Martell, P., 727, 1007.  
 Marten, L., 2856, 2904.  
 Martenet, S., 1205.  
 Martens, 2835.  
 Martens, A., 3058.  
 Martens, F., 2495.  
 Marter, C., 2719, 2766.  
 Martin, *see* Field-Martin.  
 Maftin, 448, 454, 455, 1300, 2787, 2801, 2808, 2821, 2838.

- Martin, A., 231, 1593, 1643, 2030, 2428, 2472, 2801, 2848, 2887, 2946.  
 Martin, E., 1051.  
*Martin, F., see J. Moore.*  
*Martin, G., see A. Hendricks.*  
 Martin, G., 1300.  
 Martin, J., 2618, 2680.  
 Martin, M., 2866, 2912.  
 Martin, O., and F. Jaeger, 1350.  
 Martin, P., 2413, 2711, 2712.  
 Martin, P., and J. Stanley, 2726.  
 Martin, V., 2633.  
 Martin, V., and A. Vennin, 2633.  
 Martin, W., 1075, 1081, 2742, 2908.  
 Martin de Brettes, 1600.  
 Martinand, V., 2422. •  
 Martindale, N., 2791.  
 Martindale, W., 2795.  
 Martine, 516.  
*Martini, see Maschinenbau Gesellschaft Martini, etc.*  
 Martini & Hüneke Maschinenbau-Aktien Gesellschaft, 1924, 2562.  
 Martinsen, T., 2658.  
 Martinson, H., 299, 1686, 2003.  
 Martius, 2670.  
 Martius, T., 2511.  
 Martres, J. de, 2600.  
 Martres, I., 2600.  
 Martyn, G., 2850.  
 Martyn, W., 1072.  
 Marusawa, T., 299.  
*Marvel, C., see R. Adams.*  
 Marville, 2901.  
*Marx, see Societe Neumann, Marx, etc.*  
 Marx, 1524.  
 Marx, C., 460, 1010, 1587, 2637.  
*Marx, H., see F. Fischer.*  
 Marx, H., and F. Fischer, 670.  
*Marx, J., see J. Newfield.*  
 Marx, J., 960.  
*Marx, R., see A. Newell.*  
*Marx, T., see A. Binz.*  
 Maschke, A., 2774.  
*Maschke, A., see F. Haber.*  
 Mascart, 710, 2502.  
 Mascart, E., 674, 713, 1059.  
 Mascart, L., 2578, 2684.  
 Masche, A., 1790.  
*Maschinenbau Aktien Gesellschaft, see A. Zeckendorf.*  
*Maschinenbau Aktien Gesellschaft Golzern-Grimma, see A. Zeckendorf.*  
 Maschinenbau-Aktien Gesellschaft Golzern-Grimma, 370, 1090, 2422.  
 Maschinenbau-Anstalt Humboldt, 1072, 1073, 1079, 1081.  
 Maschinenbau Gesellschaft Martini & Hüneke, 2560.  
 Maschinenfabrik Aktien Gesellschaft vorm. Wagner & Co., 1073.  
 Maschinenfabrik Buckau, 720, 1091.  
 Maschinenfabriken Augsburg und Nürnberg, 1090.  
*Maschinenpapierfabrikation, see Aktien Gesellschaft Maschinenpapierfabrikation.*  
 Maschke, O., 392.  
 Maschmjeier, A., 2713.  
 Masera, E., 669.  
 Maske, F., 2712.  
 Masland, W., 2467, 2468, 2502, 2608.  
*Mason, see Gardner.*  
*Mason, see Spencer-Mason.*  
 Mason, A., 2712, 2714.  
*Mason, F., see A. King.*  
 Mason, F., 869.  
 Mason, J., 1075, 2897.  
 Mason, N., 2780.  
 Mason, P., 946.  
 Mason, T., 1072.  
 Mason, W., 1371.  
 Masse, 2787.  
 Masselon, Roberts and Cilliard, 2049.  
 Massey, R., 2570, 2571.  
 Massink, A., 806.  
 Massmann, C., 2393, 2582, 2584.  
 Massol, L., 435.  
 Masson, A., and R. Scott, 299.  
 Masson, G., 815.  
*Masson, I., see J. Collie.*  
 Masson, I., and R. McCall, 1747.  
*Masson, J., see R. Robertson.*  
 Masson, L., and A. Reyehler, 2522.  
 Masson, M., 1292.  
 Masson, O., 515, 1750.  
 Masson, O., and E. Richards, 516.  
 Massot, W., 5, 112, 310, 2627, 2643, 2650, 2652, 2654, 2670, 2754.  
 Mastbaum, H., 1049, 2482.  
 Maste, H., 299.  
 Masters, 494.  
 Matas, F. y Rodes, 2576.  
*Mate, W., see A. Poulson.*  
 Matger, W., 610.  
 Mather, A., 1094.  
*Mather, J., see R. Speir.*  
 Mather, W., J. Huebner, and W. Pope, 230, 660, 3066.  
 Mather & Platt, 565, 2209.  
 Mathesius, W., 310.  
 Matheson, 1444.  
 Matheson, H., 1783, 2390, 2396, 2538, 2609, 2655, 2774, 2996, 3036.  
 Matheus, 299, 310.  
 Matheus, J., 195.  
 Mathews, F., and H. Elder, 2468.  
*Mathews, J., see T. Richards.*

- Mathews, J., 2467.  
 Mathews, J., and K. Faville, 2499.  
*Mathias, E., see L. Cailletet.*  
 Mathias, E., 1059, 1095, 2432.  
 Mathias, J., 2610.  
 Mathieu, J., 299.  
 Mathieu, L., 442.  
 Mathieu, V., 2882.  
 Mathis, 2866, 2885.  
 Mathison, 2842.  
 Mathison, A., 2704, 2705, 2838, 2844, 2845.  
 Matignon, 695.  
 Matignon, A., 896, 944.  
 Matignon, A., R. Trannoy, E. Urbain, A. Feige, and A. Varley, 1111, 1119, 1120.  
*Matignon, C., see M. Berthelot.*  
 Matignon, C., 674, 712, 897, 926, 935.  
 Matignon, C., and G. Gire, 1004.  
 Matos, L., 2562.  
 Matousek, F., 2002, 2003.  
*Matone, N., see W. Ipatoro.*  
*Matray Freres, see Societe Matray Freres.*  
 Matray, J., 2394, 2192.  
 Matsumoto, G., 2774.  
 Matteoschat, A., 2291.  
*Matten, see Lindemann.*  
 Matter, J., 231, 232, 664, 3066.  
*Matter, O., see C. Torley.*  
 Matter, O., 2486.  
 Matteucci, M., 2505.  
 Matthes, H., 328, 387.  
 Matthes, H., and Muller, 328.  
 Matthes, H., and F. Streitberger, 328.  
 Mattheus, 213.  
 Matthew-Plessy, E., 1592.  
*Mathews, F., see W. Perkin.*  
 Matthews, F., and H. Elder, 1783.  
 Matthews, F., and W. Messer, 2737.  
 Matthews, F., and E. Strange, 2393, 3023.  
 Matthews, F., E. Strange, and H. Bliss, 2958, 2964.  
 Matthews, J., 55, 500, 504, 525, 526, 606, 1769, 2536, 2652, 2698, 2737, 2991.  
*Matthey, see Johnson.*  
*Mathias, E., see L. Cailletet.*  
 Matthies, 1034.  
 Matthiessen, F., 448.  
 Matthiessen, F., and A. Behr, 448.  
 Matthiessen, F., and E. Quimby, 448.  
 Matthis, A., 2569.  
 Matthis, A., 2861.  
 Matthis, R., 1600.  
 Mattiolo, 243, 262.  
 Matuschek, J., 674, 714.  
 Mauch, 390.  
*Mauclore, L., see A. Schillot.*  
*Mauclere, P., see J. Rolland.*  
 Maue, G., 2411.  
 Mauge, L., 935, 979.  
 Mauger, N., 2419.  
 Maugham, T., 2993.  
 Mauguin, C., and L. Simon, 1006B.  
*Maul, R., see A. Studzer.*  
 Maule, 356.  
 Maule, C., 674.  
 Maumené, 70, 1524.  
 Maumene, E., 674, 2414.  
 Maumene, J., 947.  
 Maung, Thein Maung, 2512.  
*Maurcourt, see A. Hutin.*  
 Maurecourt, 1219, 1221.  
 Maurer, E., 896.  
*Maurey, see J. Pelonze.*  
 Maurey, L., 1587.  
*Maurice, L., see R. Lhuillier.*  
 Maury, P., 2552.  
*Mausser, see Kirsch.*  
 Mauser, A., 961, 1313.  
 Mauthner, G., 236, 2774.  
 Mauvillon, E., and V. Gullet, 2590.  
 Mawdsley, 2839.  
 Mawdsley, P., 2838, 2947.  
 Mawson and Swan, 2866, 2867.  
 Maxim, 2942, 2949.  
 Maxim, H., 1421, 1636, 1818, 1897, 2013, 2014, 2112, 2164, 2251, 2255, 2393, 2544, 2556, 2922, 2943, 2946, 2948, 2949, 2953, 2954, 2958, 2963, 2973, 2978, 2980, 2983.  
 Maxim, H., and R. Schupphaus, 2958.  
 Maxim, H., and R. Symon, 2980.  
 Maxnow, 2782.  
 Maxted, 674.  
 Maxted and Smith, 674, 687, 899, 917.  
 Maxted, E., 674, 894, 896, 899, 935, 946, 1006A.  
 Maxted, E., and G. Ridsdale, 674, 694, 899, 917.  
 Maxted, E., and T. Smith, 946, 990, 1004.  
 Maxted, L., 935.  
 Maxwell, J., 2875.  
*Maxwell, W., see E. Steiger.*  
 Maxwell, W., 238.  
*May, C., see Williams.*  
 May, G., and W. Grosvenor, 2556, 2607.  
 May, M., 2721.  
 May, W., and E. Judson, 2750.

- Mayall, 2810, 2828.  
 Mayall, J., 2848, 2850, 2885.  
 Mayall, W., *see* L. Belitzski.  
 Maybluch, C., 1029, 1031.  
 Mayeda, M., 125.  
 Mayer, *see* Chemische Fabrik Grünau.  
 Mayer, *see* Gretsck & Mayer.  
 Mayer, A., 300, 2518.  
 Mayer, L., 2487.  
 Mayer, J., 2578.  
 Mayer, M., 513, 2597.  
 Mayer, V., 2514.  
 Mayer, W., *see* G. Michaelis.  
 Mayer, W., 2658.  
 Mayer, W., and B. Tollens, 368.  
 Mayerhofer, J., 2476.  
 Mayer-Rauschenbach, J., 225.  
 Mayers, W., 1382.  
 Mayes, O., 2703.  
 Mayet, 302, 475.  
 Mayhofer, H., 1810.  
 Maylor, W., 2794.  
 Maynard, 1694, 2787.  
 Maynard, J., 2289, 2788, 2789.  
 Maynard, J., and S. Bigelow, 2789.  
 Maynard, W., 1063, 1088.  
 Mayne, 2790, 2791, 2792, 2793, 2794.  
 Mayo, C., 2556.  
 Mayow, 665.  
 Mayr, 2470.  
 Mayr, H., 299.  
 Mayrhofer, F., 2361, 2362.  
 Mayrhofer, J., *see* E. Donath.  
 Mayrhofer, J., 2422.  
 Maywald, F., *see* P. Austen.  
 Maywald, F., *see* F. Govers.  
 Maywald, F., F. Govers, and E. Austen, 2568.  
 Maywald, F., *see* P. Townsend.  
 Mazac, 2806.  
 Maze, P., 1862.  
 Maze-Launay, A., *see* J. Pellieux.  
 Mazier, F., 2787.  
 Mazo, E., *see* A. Tauleigne.  
 Massuchelli, A., *see* E. Paterno.  
 McAdam, G., and The Chadeloid Co., 2566.  
 McArthur, E., 2187.  
 McBeth, I., *see* K. Kellermann.  
 McBryde, J., *see* L. Evans.  
 McCabe, J., 1023.  
 McCaine, D., *see* W. McCaine.  
 McCaine, Daniel, and David, 2667, 2673.  
 McCaine, W., 2384, 2593, 2672, 2673, 2675, 2679.  
 McCaine, W., and D., 2593.  
 McCall, R., *see* W. Gibson.  
 McCall, R., *see* I. Masson.  
 McCall, T., *see* E. Henderson.  
 McCandless, J., 2570.  
 McCanlish, W., *see* Sabulite, Ltd.  
 McCarter, S., 2679.  
 McCaw, W., 2800.  
 McCay, L., 1056, 1324, 1344, 1366.  
 McClelland, J., 2541, 2574, 2617, 2663, 2668, 2675, 2676, 2679, 2684, 2686, 2710, 2745.  
 McClintock, W., 1633.  
 McCloskey, J., and C. Farwell, 2696.  
 McClung, R., 1057.  
 McCrae, J., and W. Wilson, 1057, 1058.  
 McComb, J., 2689, 2750.  
 McConnell, R., 674, 901.  
 McConville, E., 1011.  
 McCormack, H., and E. McMullen, 299.  
 McCourt, C., 674, 989.  
 McCourt, C., and C. Ellis, 688, 847, 853, 929.  
 McCoy, J., 2774.  
 McCoy, J., and Westinghouse Electric Co., 2542.  
 McCraw, W., 2850, 2906, 2910.  
 McCrea, R., and A. Wilson, 1034.  
 McCulloch, J., 1276.  
 McCulloch, L., 2774.  
 McCurdy, A., 2891.  
 McDaniel, A., 2467, 2490.  
 McDermott, F., 945.  
 McDonald, J., 2621.  
 McDonnell, C., 461.  
 McDonnell, M., 2716.  
 McDonough, J., 2750, 2878.  
 McDougal, A., and H. Ranson, 1011.  
 McDougall, A., *see* F. Howles.  
 McDougall, A., 299, 987, 1072, 1092, 1292, 2574, 2576.  
 McDougall, I., *see* J. McDougall.  
 McDougall, I., 299, 1075, 1088, 1313.  
 McDougall, J., and I., R. Hartley, and T. Sugden, 956.  
 McDougall, S., 1383, 1391.  
 McEachron, K., *see* C. Harding.  
 McElroy, K., *see* C. Ellis.  
 McElroy, K., *see* A. Spencer.  
 McElroy, K., 3023.  
 McElroy, K., and C. Ellis, 1784, 2693.  
 McFarland, E., and The General Electric Co., 1239.  
 McFarland, T., 660.  
 McPettridge, J., 1108, 1119, 1310.  
 McGeorge, P., 2598.  
 McGill, W., 2745.  
 McGinn, P., 2706.

- McGlashan, W., 2707.  
 McGowan, G., 736.  
 McGuanne, K., 2703.  
*McHargue, J., see J. Kastle.*  
*McIntosh, D., see E. Archibald.*  
 McIntosh, D., 2487.  
 McIntosh, J., 2524, 2774.  
 •McIntosh, J., and Diamond State Fibre Co., 2778, 2779.  
 McIntyre, A., 1076.  
*McKay, H., see W. Adams.*  
 McKay, H., 2619, 2740  
 McKechnie, D., and<sup>a</sup> W. Gentles, 1344.  
*McKechnie, J., see Vickers, Ltd.*  
 McKechnie, J., 3049.  
 McKechnie, J., Ryan and Vickers, Ltd., 3049, 3050.  
 McKee, R., 197, 205, 310, 660, 689, 848, 917, 2425, 2426.  
 McKenna, H., 2527.  
*McKenzie, A., see W. Marckwald.*  
 McKenzie, A., 2461.  
 McKenzie, A., and H. Müller, 2463, 2464.  
 McKenzie, W., 2512.  
 McKenzie, W., and H. Braker, 2512.  
*McKerrow, C., see S. Goldreich.*  
 McKerrow, D., and Splinterless Antimist Glass Syndicate, 2684.  
*McKie, P., see K. Orton.*  
 McLachlan, 2818.  
*McLachlan, C., see F. Morris.*  
*McLaren, A., see R. Moffat.*  
*McLaren, W., see D. Sutherland.*  
*McLauchlan, see Mackenzie.*  
*McLauchlan, W., see J. Flint.*  
 McLauchlan, W., 440.  
 McLaughlin, J., 299.  
 McLaurin, R., 2608.  
*McLean, see Blair.*  
 McLean, J., 1874.  
 McLean, T., 2940.  
 McLennan, A., 2608, 2620.  
*McMahon, H., see H. Sanborn.*  
 McMann, M., 2711.  
*McMaster, L., see E. Kaiser.*  
*McMillan, J., see F. Lundt.*  
 McMillan, W., 2714.  
*McMullen, E., see H. McCormack.*  
 McNab, J., 1291.  
 McNab, J., and R. Jenkins, 2985.  
 McNab, W., 2926.  
*McNaughton, G., see O. Kress.*  
*McOmber, L., see A. Jacobsson.*  
 McPhail, H., 2903.  
 McPherson, W., 2774.  
 McPhie, J., and M., 2393, 2608.  
*McPhie, M., see J. McPhie.*  
 McQuade, A., 299.  
 McQuitty, R., 2579.  
*McRae, see Phelps.*  
 McRae, J., 2785.  
 McRae, W., 299.  
 McRae, W., and N. Malcolmson, 299.  
 McRoberts, G., 1632-1794, 2958. •  
 McTabish, Ramsay & Co., and A. Ramsay, 3059.  
 McVey, G., 2697.  
 M'Dougall, J., 299.  
 M'Dougall, J. T., 299.  
 M'Dougall, J. T., and J., 299.  
 Meader, J., 2394.  
*Meadway, F., see British Patent Surbrite Co.*  
 Mease, G. D., 1011.  
 Mechel, de, 1677.  
 Meckel, A., 2739.  
 Medeiros, J. de, 1011.  
*Medley, E., see C. Fowler.*  
 Medlock, H., 2446.  
*Medofski, S., see L. Radcliffe.*  
 Medveczky, S., de, 1787, 1789, 1889, 2660, 2676, 2684, 2693, 2696, 2774, 2781.  
 Meech, H., 2600.  
 Meech, E., 2716.  
 Meek, J., 2893.  
 Meer, F. ter, 2774.  
 Meers, S., 2606, 2609.  
*Meertz, V., see T. Stephan.*  
 •Meerwein, H., 2523.  
 Mees, and Sheppard, 2874.  
 Meeze, A., 2814.  
 Meffert, J., 946.  
*Megele, A., see H. Buchner.*  
*Meggesson, W., see G. Pelmeur.*  
 Meggitt, L., 2280.  
*Mehlis, T., see H. Weiske.*  
 Mehner, A., 2774.  
 Mehner, H., 932, 944, 946.  
*Mehrlens, G., see C. Paal.*  
*Mehrlens, M., see N. Busch.*  
 Mehu, 2787.  
 Meier, A., and H. Rall, 2602.  
 Meigs, C., 959, 1206, 1207, 1239, 1289, 1300, 1411. •  
*Meigs, J., see C. Forrest.*  
*Meihuizen, S., see L. Aronstein.*  
 Meikle, J., 1344.  
 Meillere, G., 1326.  
 Meineke, 390. •  
 Meineke, C., 390, 412, 1056, 1060.  
 Meinert, C., 2864.  
*Meisenheimer, J., see E. Buchner.*  
 Meisenheimer, J., and F. Heim, 1717.  
 Meissel and Boecker, 389.  
 Meissner, G., 1678.

- Meissner, P., 2619, 2669, 2680, 2859, 2861.  
*Meister, Lucius and Brüning, see Farbwerke Höchst, vormal's Meister, Lucius and Brüning.*  
*Mejia, see A. Hernandez-Mejia.*  
*Melamed, M., see E. Kholinsky.*  
 Melamid, M., 2779.  
 Meland, 2972.  
 Melander, 2809, 2810.  
 Melchers, J., 300.  
 Melhardt, C., 300, 311.  
 Meline and Montreuil, 2825, 2826, 2829.  
 Melkersman, F., 452.  
 Melland, 1629, 1815.  
 Meller, 2787.  
 Mellersh-Jackson, 935.  
 Mellez, 1630.  
*Mellier, see Coupier.*  
 Mellier, 292.  
 Mellor, J., 1102.  
 Mellor, S., 947.  
*Mellquist, H., see P. Klason.*  
 Melsens, G., 195.  
 Melsens, H., 1059, 1060, 1617.  
 Melsens, L., 392, 475.  
*Meltzer, P., see Gewerkschaft Messel.*  
 Melville, A., 686.  
*Menard, see F. Flores-Domonte.*  
 Menard, 2743.  
 Ménard-Dez, L., 1283.  
 Menaud, P., and C. Dowell, 660.  
 Mendel, F., 2411.  
*Mendeleeff, D., see Marignac.*  
 Mendeleeff, D., 1314, 1316, 1637, 2398, 2429, 2433, 2490, 2959.  
 Mendeleeff, 1721, 2939, 2942.  
 Mendeleeff, D., W. Hemilian, and L. Bogusky, 1060.  
 Mendelsohn, M., and E. Frankel, 126.  
 Mendelssohn, H., 2910.  
 Mendess, J., 2578, 2614.  
 Mene, C., 1011, 1022, 1049.  
 Meneghini, D., 674, 895, 917, 943, 944.  
 Menesdorffer, A., 2601.  
*Menier, H., see Ver. Gummi-Waaren Fabr. Harburg, etc.*  
*Menke, A., see C. Jackson.*  
 Mönke, A., 1060.  
 Mennechet, L., 2570.  
 Mennons, M., 2661.  
 Menschutkin, B., 2463.  
*Menschutkin, N., see W. Sagrebin.*  
 Menschutkin, N., 2431, 2440, 2441, 2449, 2459, 2463, 2486, 2489, 2496, 2502, 2504, 2505, 2509.  
 Menschutkin, N., and D. Konowalow, 2453, 2486.  
 Mensik, J., 2601.  
 Mensing, W., 660.  
*Menter, F., see Z. Skraup.*  
 Mentienné, 2797.  
 Mentior, A., 2417.  
 Mentz, 2859.  
*Menzel, W., see A. Finger.*  
 Menzies, R., 300.  
 Menzies, R., C. Cross, and E. Beva, 300.  
*Menzies, W., see W. Balmain.*  
*Menzies, W., see J. Morgan.*  
 Menzies, W., 1350.  
 Mer, E., 396.  
 Merbig, A., 2569.  
 Mercadante, M., 403.  
 Mercer, 69, 2855.  
 Mercer, J., 214, 215, 216, 224, 225, 228, 229.  
 Merchants' Manufacturing Co., 2667.  
 Mercier, T., 958.  
 Merck, E., 37, 929, 2434, 2467, 2774.  
 Merck, E., & Co., 2552.  
*Merckens, W., see J. Smith.*  
 Merckens, W., 2882, 2884.  
 Merckens, W., and B. Manissadjian, 1785, 2540, 2774, 2896, 3033, 3045.  
 Mercurine Manufacturing Co., 2578.  
 Merczwyrng, H., 2467.  
 Meredith, C., 2794.  
 Merejkowsky, B., 1857.  
 Merfille et Cie., H., 2861.  
 Merget, 2910.  
 Mering, F. v., 468.  
*Mering, J. v., see H. Thierfelder.*  
*Mering, J. de, see F. Musculus.*  
 Mering, J. v., 2455.  
*Merk, E., see E. Merck.*  
 Merktl, 2779.  
 Merle, 2972.  
 Merle, M., 1640, 2690, 2693.  
 Merrett, J., 2916.  
*Merreywether, J., see H. Richmond.*  
*Merriam, H., see T. Briggs.*  
*Merriam, H., see E. Hudson.*  
*Merriam, L., see British Xylonite Co.*  
 Merriam, L., 2574, 2701, 2719.  
 Merrick, F., 2609.  
*Merril, J., see C. Sammet.*  
*Merrill, A., see G. Goldsmith.*  
*Merrill, J., see C. Brand.*  
*Merrill, J., see F. Veitch.*  
 Merrill, J., 300, 453.  
*Merriman, H., see O. Silberrad.*  
*Merriman, R., see J. Wade.*  
 Merriman, R., 2502.

- Merritt, 2830.  
 Mersereau, G., 3022.  
 Merson, G., 2794.  
 Mertens, E., 2750, 2899, 2917.  
 Mertens, P. v., see A. Bauer.  
 Mertens, Z., 2740.  
 Mertens & Co., 2650.  
 Mertens & Co., and H. Jerosch, 78.  
 Mertens & Co., H. Jerosch, and H. Lyncke, 2693.  
 Merton, 1079.  
 Merton, T., 1073. •  
 Merton, T., and H. Ridge, 1073, 1079.  
 Merturi, see Jakova-Merturi.  
 Mertz, F., 74, 2633, 2641, 2654.  
 Mertz, V., see British Cellulose Syndicate, Ltd.  
 Mertz, V., 74.  
 Merville, see Societe H. Merville.  
 Merville and Co., H., 2859.  
 Mervin, L., see M. Padoa.  
 Merwin, H., see E. Posnjak.  
 Merz, G., 1619.  
 Merz, L., see F. Krafft.  
 Merz, O., 2641.  
 Merz, V., 1101.  
 Merz, V., and K. Gasiorowski, 2440.  
 Merz, V., and W. Weith, 2453.  
 Mescher, K., 1271. •  
 Meserve, P., see A. Seidell.  
 Messel, see Squire.  
 Messel, R., see W. Majers.  
 Messel, R., see S. Squire.  
 Messel, R., 674, 1091, 1092, 1101, 1115, 1203, 1335.  
 Messer, A., 2849.  
 Messer, W., see F. Matthews.  
 Messer & Co., 688.  
 Messerschmidt, A., see H. Goldschmidt.  
 Messow, H., 311.  
 Mestanz, L., 2575, 2762.  
 Mestrallet, see Peschard.  
 Mestrallet-Petry, E., 2670, 2754.  
 Mestrezal, W., see J. Ville.  
 Meszaros, E., 2602.  
 Metallbank and Metallurgische Ges., 334, 1072, 1073, 1080, 1082, 1203, 1280.  
 Metallbank u. Metallurgische Ges. and H. Klencke, 797, 1219, 1221, 1222, 1223. •  
 Metallic Compounds Separation Syndicate, 1090.  
 Metalline Platten Ges., 2850, 2864.  
 Metallpapier-Bronzefarben-Blattmetallwerke, A. G., 2588.  
 Metallurgie Nouvelle, see Soc. anon. Metallurgie Nouvelle.  
 Metallurgische Ges., see Metallbank.  
 Metallurgische Gesellschaft, 1092.  
 Metals Extraction Corporation, see W. Hommel.  
 Metals Research Co., 1310.  
 Metals Research Co., and R. Bacon, 1076.  
 "Metan," Spolka ograniczona odpowiedzialnoscia, 1006A.  
 Metcalfe, D., see C. Curtis.  
 Metcalfe, D., 2958.  
 Meth, R., 2444. •  
 Metheson, 2819.  
 Metschnikoff, Roux, and Salambeni, 2784.  
 Mettler, E., see E. Briner.  
 Mettler, C., 2417.  
 Metzger, F., 920.  
 Metzger, F., 899, 935, 1006A, 3005.  
 Meunier, see Soc. Meunier.  
 Meunier, F., 2394.  
 Meunier, G., 2556.  
 Meunier, I., 662.  
 Meunier, J., 1056, 1335, 2561.  
 Meunier, L., see F. Courturier.  
 Meunier, L., 311.  
 Meurer, 2471.  
 Meurling, V., see T. Nordenfelt.  
 Meusel, E., 346.  
 Meuton, 726.  
 Meves, R., 689.  
 Mewburn, J., 568.  
 Mewilleux, 2787.  
 Mewes, R., 1005, 1006A, 2633.  
 Meydenbauer, 2873.  
 Meyenberg, J., 2766.  
 Meyenburg, F. v., see K. Auwers.  
 Meyer, see Chemische Fabrik Grünau (Landshoff & Meyer).  
 Meyer, see Langer.  
 Meyer, see J. Lifschutz.  
 Meyer, see Zawadski.  
 Meyer, 390.  
 Meyer Freres, see Societe Meyer Freres.  
 Meyer, A., see A. Scott.  
 Meyer, A., 127, 389, 390, 399, 400, 412, 445, 2523.  
 Meyer, C., see A. Bullner.  
 Meyer, C., see V. Meyer.  
 Meyer, C., 284, 448.  
 Meyer, C., and C. Gasman, 928.  
 Meyer, C., and Heck, 3081.  
 Meyer, C., and V., 1016.  
 Meyer, D., and R. Gorkow, 921, 1006B. •  
 Meyer, E., see M. Mueller.  
 Meyer, E., see X. Zawadski.  
 Meyer, E., 2647, 2783.



- Meyer, E. v., and A. Lottermoser, 2820.  
 Meyer, E., and J. Stillesen, 929.  
 Meyer, F., 1084, 1101, 1103, 1162, 1351, 1387, 2693, 2729, 2744, 2745, 2774, 3020, 3033, 3044, 3060, 3080.  
 Meyer, G., 958, 3042, 3044.  
 Meyer, H., *see* E. Harnak.  
 Meyer, J., *see* J. Jannek.  
 Meyer, J., 82, 1016, 1036, 1060, 1381, 2300, 2852.  
 Meyer, J., Bros., 2590.  
 Meyer, J., and J. Arbuckle, 2416.  
 Meyer, J., and W. von Garn, 1056, 1336.  
 Meyer, J., and J. Jannek, 1335.  
 Meyer, J., and E. Trutzer, 674.  
 Meyer, K., 2406, 2435, 2491, 2498, 2499, 2500, 2502, 2504, 2506, 2507.  
 Meyer, L., 179, 710, 1060, 2487.  
 Meyer, L., and F. Binnecker, 85.  
 Meyer, M., 2562.  
 Meyer, O., *see* W. Elsner.  
 Meyer, O., 674, 710, 713, 1060, 2388.  
 Meyer, O., and F. Springmühl, 710, 1060.  
 Meyer, P., 1385, 2633, 2679, 2686, 2689, 2726.  
 Meyer, R., *see* F. Tiller.  
 Meyer, R., 956.  
 Meyer, R., and J. Maier, 67.  
 Meyer, T., 805, 1203, 1215, 1216, 1217, 1226, 1239, 1240, 1243, 1250, 1260, 1276, 1283.  
 Meyer, V., *see* H. Biltz.  
 Meyer, V., *see* G. Daccomo.  
 Meyer, V., *see* C. Langer.  
 Meyer, V., *see* G. Lunge.  
 Meyer, V., *see* C. Meyer.  
 Meyer, V., 674, 710, 713, 1016, 2439.  
 Meyer, V., J. Barbieri, and F. Förster, 2429.  
 Meyer, V., and F. Förster, 2430.  
 Meyer, V., and C. Meyer, 674.  
 Meyer, V., and G. Pond, 2487.  
 Meyer, W., and von Reiche, 1863.  
 Meyers, *see* Gage.  
 Meyers, 2780.  
 Meyers, H., 1203.  
 Meyers, L., 2564.  
 Meyers, T., 1214.  
 Meyers, V., 718.  
 Meyers, W., *see* T. Fox.  
 Meyersberg, P., 2463.  
 Meyer-Zimmerli, E., 2660, 2767.  
 Meyes, R., 1094.  
 Meygret, A., 2574, 2598, 2701, 3062.  
 Meynier, 1767, 2787, 2807, 2808, 2818, 2829.  
 Mezzadrolì, G., 197, 2397, 2425.  
 M'Ghie, J., 2828.  
 Miahle, 2787, 2789, 2801.  
 Micciollo, A., 2978.  
 Michael, A., 390, 413, 1016, 2444, 2463, 2774.  
 Michael, A., and A. Adair, 1016.  
 Michael, A., and R. Brunel, 2444.  
 Michael, A., and P. Cobb, 2444.  
 Michael, A., and H. Leupold, 2463.  
 Michael, A., and J. Ryder, 2774.  
 Michael, A., and K. Wolgast, 2436.  
 Michael, F., 2899.  
 Michael, R., 1335.  
 Michaeli, A., 1101.  
 Michaelis, 67, 2805.  
 Michaelis, A., *see* A. Geuther.  
 Michaelis, A., 1060.  
 Michaelis, A., and G. Koethe, 1060.  
 Michaelis, E., 2713, 2716.  
 Michaelis, G., 2388, 2562, 2566.  
 Michaelis, G., and W. Mayer, 2385.  
 Michaelis, K., 1091.  
 Michaelson, C., 2438.  
 Michaely, A., and L. Deboucq, 946.  
 Michaut, P., 2788.  
 Michel, 1033.  
 Michel, C., 2718.  
 Michel, E., *see* L. Duchesne.  
 Michel, F., 3024.  
 Michel, O., and E. Grandmougin, 943, 944.  
 Michel, P., *see* E. Batonnier.  
 Michel, R., 2590.  
 Michela, M., *see* E. Rotondi.  
 Michela, P., 5.  
 Michels, *see* Semper.  
 Michey, E., *see* P. Prost.  
 Michiels, L., 2466, 2467.  
 Mücke, 2904.  
 Micko, K., 2445.  
 Micksch, K., 2604, 2681, 2721.  
 Micoud, A., 2600, 2603.  
 Middleton, Mills and Zoehrome, Ltd., 2897.  
 Middleton, N., 2603.  
 Middleton, T., *see* F. Kent.  
 Middleton, T., *see* Kerotype, Ltd.  
 Middleton, T., F. Kent, and W. Ferguson, 2882.  
 Middleton, W., 935, 1006B.  
 Midgley, T., 2700.  
 Midgley, W., 456.  
 Mieg & Co., *see* Dollfus, Mieg & Co.  
 Miehle, A., and H. Fritzsche, 2893.  
 Mielli, A., *see* E. Paterno.  
 Mierisch, O., *see* O. Eberhard.  
 Mierzinsky, 2385, 2476.  
 Miethe, 2857.

- Miethe and Traube, 2874.  
 Midlin, B., Hood Brick Co., 1269.  
*Miglioretti, G., see F. Cantu.*  
 Miglioretti, G., and G. Maffei, 2762.  
*Migliorini, E., see M. Levi.*  
 Migurski, 2810, 2811.  
 Miguski, 2825.  
 Mihr, F., 1505.  
 Mijnessen, C., 3042, 3051.  
*Miklaus, R., see F. Dafert.*  
 Mikolajczak, A., 1827, 2054, 2959.  
 Mikorey, H., 2737.  
 Milans, J., 2737.  
 Milbauer, 1333.  
 Milbauer, J., 1312.  
 Milde, E., 923, 1006A.  
 Miles, G., 2991, 3007, 3014, 3022.  
 Miles, J., 2842.  
*Miles, N., see F. Egge.*  
*Milesti, A., see L. Francesconi.*  
 Miley Color Photograph Co., 2878, 2882.  
*Miley, H., see M. Miley.*  
 Miley, M., and H., 2750.  
 Militär-Geographisches Institut (of Vienna), 2819.  
 Militz, A., 415.  
 Millar, A., 2606, 2647.  
*Millar, J., see H. Brown.*  
*Millar, J., see J. Sudborough.*  
 Millard, E., 300.  
*Miller, see Mackay.*  
 Miller, 2084, 2086, 2088.  
 Miller, A., 226, 3066.  
*Miller, B., see J. Singewald.*  
 Miller, C., 2781.  
 Miller, E., 674, 962, 1030, 2562.  
*Miller, F., see C. Baskerville.*  
 Miller, F., 2683.  
 Miller, F., and Millergraph Co., 2546, 2745, 2751, 2910.  
 Miller, G., 1063, 2697.  
 Miller, H., 2579, 2673, 2674, 2677, 2713, 2714, 2717.  
 Miller, H. v., and C. Opl, 1030.  
 Miller, J., 2390.  
*Miller, N., see H. Hutchinson.*  
 Miller, N., 452.  
 Miller, O., 128, 219, 220, 3066.  
 Miller, T., 2718.  
 Miller, W., and A. Pierman, 2737.  
*Millergraph Co., see F. Miller.*  
 Millet, 2799.  
 Millet, J., 2737.  
*Millet, P., see A. Kuner.*  
 Milligan, F., 2717.  
 Milligan, H., 2703, 2707.  
 Milligan, H., and A. Board, 446.  
 Milligan, T., 691.  
*Milliken, J., see A. Smith.*  
 Millon, 1881.  
 Millon and Gaudin, 2800.  
 Millon, E., 710, 714, 953.  
 Millosevich, F., 1016.  
*Mills, see Middleton.*  
*Mills, see Pope.*  
 Mills, C., 2518.  
*Mills, E., see R. Hannan.*  
 Mills, E., 1600, 1863.  
 Mills, E., and J. Takamine, 32, 121.  
 Mills, F., 2916, 2917.  
 Mills, J., 2463.  
 Mills, J., and H. Battle, 2556.  
 Mills, M., 300.  
 Mills, W., 814, 986.  
 Mills, W., and W. Morgan, 2583, 2969.  
 Mills, W., and C. Packard, 1239.  
 Mills, W., C. Packard, and E. Packard & Co., 1214.  
 Millsbaugh, W., 2693.  
 Milne, 2092.  
 Milne, D., 3050.  
*Milne, R., see W. Hill.*  
*Milne, S., see D. Bertram.*  
 Milne, S., 300.  
 Milner, J., 713.  
 Milo, E., and E. Richardson, 2576, 2593.  
 Milobendski, T., 2524.  
 Miltner, E., 2697.  
 Milts, C., 300.  
 Minajeff, 67.  
*Minajeff, W., see W. Saposchnikoff.*  
 Minajeff, W., 65, 66, 84, 128, 529, 2627, 2641, 2652.  
*Minajew, see Minajeff.*  
 Mincher, E., 2729, 2739.  
 Minchin, G., 2872.  
 Minck, P., 86, 660.  
 Minck, P., and Bremer Baumwollwerke, 571, 1878.  
 Minck, P., and E. de Segundo, 579.  
*Miner, C., see A. Bryant.*  
 Mineral Point Zinc Co., 1191.  
*Minganti, T., see C. Scagliarini.*  
 Mingay, F., 2726.  
*Minguin, A., see A. Haller.*  
*Minguin, J., see A. Haller.*  
 Minguin, J., 2514, 2522.  
 Minguin, L., 2463.  
*Minieres, see A. DesMinieres.*  
 Minnis, T., 2591.  
 Minns, H., 2619.  
*Minor, J., see W. Gesell.*  
*Minor, J., see F. Seibert.*  
 Mipor, J., 34, 660.  
 Minor, P., 2611.

- Minor, P., and B. Britton, 2592.  
 Minor, W., 1077.  
 Minot, 2782.  
 Minot, C., 2781.  
 Minozzi, Z., 2406.  
 Minssen, H., 1621.  
*"Mirabel," see Soc. anon. "Mirabel."*  
 Mirande, M., 2502.  
*Mirbach, A., see H. Rehmann.*  
*Mirbel, see C. Brisseau-Mirbel.*  
 Mire, J., 2958.  
 Mirow, F., 428.  
 Mischeln, 2627.  
 Misko, J., 2723.  
 Mislin, E., and L. Lewin, 2461.  
*Missagh, G., see F. Selmi.*  
 Mitchell, 2787.  
*Mitchell, C., see F. Welles.*  
 Mitchell, C., 1621, 1694, 2004, 2789, 2791, 2905.  
 Mitchell, C., and R. Prideaux, 507, 531.  
 Mitchell, E., 2579, 2660.  
 Mitchell, F., and W., 2633, 2650.  
*Mitchell, G., see J. Bullock.*  
*Mitchell, H., see J. Smith.*  
*Mitchell, J., see W. Donald.*  
 Mitchell, J., 1060, 2730.  
 Mitchell, J., and D. Parks, 850.  
 Mitchell, R., 2615.  
*Mitchell, W., see F. Mitchell.*  
*Mitkevitch, B., see A. Gorboff.*  
 Mitrophanow, P., 2780.  
 Mitscherlich, 2, 161, 196, 212, 290, 318, 337, 1252.  
 Mitscherlich, A., 266, 271, 286, 287, 311, 2414, 2993.  
 Mitscherlich, E., 339, 961, 1016, 1571.  
 Mitscherlich, R., 277, 287.  
 Mitscherlich, W., 608, 1900, 2624.  
*Mittasch, A., see Bosch.*  
*Mittasch, A., see K. Heresheimer.*  
 Mittelacher, A., 2683, 2746, 2750.  
 Mittelmeier, 391.  
*Mittelmeier, H., see C. Scheibler.*  
*Mittenzwey, M., see O. Erdmann.*  
 Miura, S., *see C. Neuberg.*  
 Miura, S., 2411.  
 Mixter, W., 1634.  
 Miyake, K., 396.  
 Miyoshi, M., 1016.  
 M'Kean, J., 2845.  
 Mobley, E., 2737.  
 Mock, H., and A. Blum, 1023.  
*Mode Naie, see Naie.*  
*Moderne, M., see H. Pontanier.*  
 Moe, C., 33.  
*Mödderman, see R. Tjaden-Mödder-*  
*man.*  
 Möhlau, R., and L. Kahl, 243, 2774.  
 Möhlau, R., and P. Koch, 2774.  
 Möhlau, R., and E. Strohbach, 2774.  
 Mochlay, 115.  
 Mochr, H., 2601.  
*Moeller, see Chamier.*  
*Moeller, see F. Holtkamp.*  
 Möller, E., 1082, 1203.  
*Moller, G., see H. Jahn.*  
 Möller, H., 2502.  
 Moller, J., 2825, 2832.  
 Moeller, W., 311, 1329.  
 Möller-Holtkamp, 232.  
 Moller and Linsert, 2774.  
 Moens, W., 2835.  
 Mörch, H., 2601.  
 Mörch, K., 300.  
*Moesch & Co., see M. Platsch.*  
 Moessard, P., 2751.  
*Moest, M., see R. Berneck.*  
*Moest, M., see H. Hofer.*  
 Moest, M., 701, 845, 982, 995, 997.  
 Moest, M., and R. von Berneck, 703.  
 Moest, M., R. v. Berneck, and J. Opl, 995.  
 Moest, M., and M. Eckardt, 995.  
 Moest, M., R. Muller, von Berneck, and Meister, Lucius & Bruning, 709.  
 Moest, M., and E. Schirm, 2997.  
 Moffat, R., and A. McLaren, 1299.  
 Moffatt, A., 454.  
 Moh, O., 2647, 2891, 2899.  
 Moh, O., A. Heseckel, and J. Grünewald, 2891.  
 Mohimont, 2787.  
 Mohl, 242.  
 Mohl, H. v., 2, 196, 390, 391.  
 Mohler, E., 2479, 2491.  
 Mohnhaupt, M., 1051.  
 Mohr, 85, 1513, 2502.  
 Mohr, O., 2419.  
 Moigno, 2914.  
 Moiminer, J., 1011.  
 Moir, J., 2304, 2335.  
 Moissan, H., 674, 714, 925, 1016, 1034, 1060.  
 Moisson, H., and P. Lebeau, 712.  
 Moitisseur, A., 2848.  
 Moitessier, 2798, 2867.  
 Moitessier, A., 1016.  
 Mokiewsky, W., 2459.  
 Molard, H. de, 2797, 2917.  
*Moldenke, R., see B. Viola.*  
 Moldenhauer, C., and C. Heinzerling, 2506, 2507.  
*Moldenhauer, W., see O. Dieffenbach.*

- Moldenhauer, W., 945.  
 Moldenhauer, W., and F. Groebe, 674, 935.  
 Moldenhauer, W., and O. Wehrheim, 674, 694, 894.  
 Moldenhaur, 2469.  
 Molengraaff, G., 1016.  
 Moles, E., 1126.  
 Moleschott, 2792.  
 Molhant, A., 2425.  
 Molinari, E., *see* F. Quartieri.  
 Molinari, E., and F. Quartieri, 2924.  
 Molinie, M., *see* F. Marboutin.  
 Molisch, 112, 243.  
 Molisch, H., 197, 243, 262.  
 Moll, F., 451.  
 Moll, J., 451.  
 Moll, M., 452.  
 Moll, R., *see* F. Lohnis.  
 Moll & Co., 2687.  
 Moller, G., *see* H. Jahn.  
 Moller, J., and J., 1632.  
 Mollet, J., 1572.  
 Molloy, B., *see* B. Fitz-Gerald.  
 Molloy, B., and J. Warren, 947.  
 Molosse, H., 2503.  
 Molz, E., 1036.  
 Mommer, F., & Co., 225.  
 Monari, A., and M. Carlinfanti, 2480.  
 Moncany, G., 2616.  
 Monckmann, J., 1016.  
 Monckhoven, 2574, 2575, 2812, 2813, 2819, 2821, 2822.  
 Monckhoven, D., 78, 2805, 2808, 2810, 2815, 2826, 2886.  
 Monckhoven, D. van, 1592, 2803, 2804, 2825, 2835, 2838, 2842, 2850, 2851, 2855, 2868, 2904, 2912.  
 Monckton, E., *see* T. Morris.  
 Monckton, E., 941, 1011, 1619.  
 Mond, A., 796, 3049.  
 Mond, L., 811, 934, 945.  
 Mond, M., W. Ramsay, and J. Shields, 1133, 2404.  
 Monestier, C., and I. Bang, 2600.  
 Monge, H., *see* J. Bevallee.  
 Monge, H., *see* J. Vermeesch.  
 Mongin, 2828.  
 Monheim, J., *see* J. Bredt.  
 Monie, 487, 493, 499, 525.  
 Monie and Bowman, 507.  
 Monier, E., 475.  
 Monin, 2681.  
 Monin, A., 300.  
 Monnartz, P., *see* W. Borchers.  
 Monnet, C., 311.  
 Monni, L., 2959.  
 Monnier, A., 674, 935, 1292.  
 Monnington, A., 2708.  
 Monod, A., 2633.  
 Monoyer, F., 2512.  
 Monpillard, 2913, 2916.  
 Monroe, K., 300.  
 Monroe, O., 2756.  
 Monseu, A., *see* H. Hennebutte.  
 Monseur, H., 78.  
 Monsolt, J., 2838, 2844, 2847.  
 Montagna, A., 2864.  
 Montain, V., 2679, 2689, 2690, 2710, 2716.  
 Montaland, L., 2523.  
 "Montania" Brennverwertung Ges., 2409.  
 Montanus, 390.  
 Montbaron, A., and A. Ducommun-Mueller, 943.  
 Montemartini, C., 710, 713, 953, 961.  
 Montenegro, B. de, *see* E. Hildt.  
 Montessus, H. de, 300.  
 Montessus de Ballore, H. de, 300.  
 Montgolfier, de, *see* also De Montgolfier.  
 Montgolfier, J. de, 2528.  
 Montgomery & Co., 674, 729.  
 Montgomery and Royston, 687, 688.  
 Montgomery, C., and E. Royston, 694, 896.  
 Montgomery, H., *see* A. Carmichael.  
 Montgomery, J., 847.  
 Montgomery, T., and J. Warnke, 1029.  
 Montgomery, W., 731.  
 Montgomery, W., & Co., 725, 742.  
 Montier, L., 2603.  
 Montieth, D., 990.  
 Montizon, 2815, 2823.  
 Montizon, J., 2885.  
 Montizon, L., 2807.  
 Montlaur, A. de, 916, 1114.  
 Montlord, G. de, 2618.  
 Montreuil, *see* Melne.  
 Montruil, 2921.  
 Monty, L., 2640, 2645.  
 Moody, H., and S. Tucker, 849.  
 Moody, J., *see* C. Harper.  
 Moody, S., *see* C. Piers.  
 Moore, 674.  
 Moore, B., and H. Roof, 2489.  
 Moore, C., 455, 456, 1073.  
 Moore, F., *see* R. Appe.  
 Moore, F., *see* J. Fisher.  
 Moore, F., 2575, 2701.  
 Moore, F., and J. Hall, 837, 1271, 1392.  
 Moore, G., 300, 2656, 2723.  
 Moore, H., 172, 1042, 1311, 2425.  
 Moore, H., and G. Richter, 1088.

- Moore, H., and R. Wolf, 311, 1093.  
 Moore, J., and Jesmond Cycle Co., 2699.  
 Moore, J., and F. Martin, 1099.  
 Moore, M., 660.  
 Moore, O., 300.  
 Moore, Q., J. Cunningham and J. Stokes, 896, 946.  
 Moore, R., and T. Williamson, 729.  
 Moore, T., 1343.  
 Moore, W., 300.  
 Moore, W., and A. Shardlow & Co., 2699.  
 Moos, C. de, 2900.  
 Mooser-Schiess, W., 3045.  
 Morance, M., 1339, 1382.  
*Morane, see Societe Desmarais.*  
*Morane, G., see L. Desmarais.*  
 Morane, G., and M. Denis, 2630.  
*Morane, L., see J. Schmerber.*  
 Morane, L., 1956, 2029, 2559, 2624, 2633, 2674, 2978.  
 Morani, F., 921, 1006B.  
 Morani & Fausto, 1006B.  
*Morawski, T., see J. Stingl.*  
 Morawski, T., 243, 264.  
 Mordan, G., 700.  
*Moreau, see Fontaine Moreau.*  
 Moreau, 2515.  
 Moreau, A., 1628.  
 Moreau, F., 418.  
 Moreau, T., 469.  
 Morel, 1573.  
 Morel and Chaudun, 1573.  
*Morel, A., see P. Cazeneuve.*  
*Morel, A., see L. Hugouneng.*  
 Morel, I., 449.  
 Morel, L., and E. Terroine, 2491.  
 Morel, R., 1570, 1572.  
 Morell, G., and P. Burgen, 674.  
 Morelle, A., 2716.  
 Morenl, 540.  
 Moreschi, A., 2392, 2979.  
 Moret, J., 2728.  
 Moreul, T., 513, 573, 2968.  
 Moif, D., 1004.  
 Morfit, C., 958.  
*Morförd, J., see Viscose Development Co.*  
 Morgan, 2830.  
*Morgan, A., see M. Maercker.*  
 Morgan, D., 799.  
 Morgan, F., 2906.  
 Morgan, J., 799, 1370, 1549.  
 Morgan, J., and C. Davis, 1318.  
 Morgan, J., and W. Menzies, 227, 3066.  
 Morgan, J., and F. Owen, 2489.  
 Morgan, P., 2611.  
*Morgan, R., see J. Northrop.*  
*Morgan, W., see W. Mills.*  
 Morgan, W., 2868, 2869.  
 Morgen, A., 460, 674.  
 Morgeneier, J., 2904.  
 Morgenstern, S., 2422, 2485.  
 Morgenstern, W., 2979.  
*Mori, see Lemann.*  
*Mori, Y., see O. Kellner.*  
 Moriceau, A., 2633, 2650.  
 Morimoto, Y., 847, 926.  
 Morimura, S., 2671.  
*Morin, see Piobert.*  
 Morin, 1585.  
*Morin, A., see A. Segquier.*  
 Morin, A., 2.  
*Morin, E., see E. Claudon.*  
*Morin, H., see A. Girard.*  
 Morin, H., 2647, 2762.  
*Moriones, A., see J. Escamez.*  
 Morison, J., 3080.  
*Moritz, see Bragg.*  
*Moritz, E., see H. Brown.*  
 Moritz, E., 475.  
*Moritz, P., see W. Biedermann.*  
*Moritz, R., see E. Bracq-Laurent.*  
 Moritz, R., 1209, 1212, 1213, 1271, 1276, 1291.  
*Moritz-Sandoz & Co., see C. Sandoz-Moritz & Co.*  
 Mork, 149.  
*Mork, H., see G. Esselen.*  
*Mork, H., see F. Gallagher.*  
 Mork, H., 5, 2498, 2991, 2992, 3008, 3012, 3039, 3051, 3055.  
 Mork, H., and G. Esselen, 3032, 3045.  
 Mork, H., A. Little, and W. Walker, 3009, 3052, 3053.  
 Mork, H., and W. Walker, 132.  
 Mormann, W., 82.  
 Morovni, W., 2438, 2472.  
 Morpurgo and Tirelli, 2784.  
 Morrell, G., and P. Burgen, 935.  
 Morrell, R., 2570.  
 Morren, 674, 1094.  
 Morren, A., 1060.  
 Morretto, P., 2404.  
*Morrice, J., see W. Thomson.*  
*Morris, see Brown.*  
 Morris, 805.  
 Morris, F., 2928.  
 Morris, F., J. Raine, J. Kerr and C. McLachlan, 927.  
*Morris, G., see H. Brown.*  
 Morris, G., and J. Wells, 473.  
 Morris, H., 959.  
 Morris, H., and N. Turnbull, 959.  
 Morris, R., 2901.

- Morris, T., R. Weare and E. Monckton, 2573, 2605.  
 Morris, W., 2604.  
 Morrison, G., 2738.  
 Morrison, J., 2705.  
 Morrow, H., 104, 2603.  
 Morrow, M., 660.  
 •Morse, H., and J. White, 713.  
 Morselli, G., 674, 926, 935.  
 Morson, T., 2411.  
 Morterud, E., 284, 300, 311.  
 Mortier, P., 2888.  
 Morton, 2743.  
 Morton, D., see L. Jones.  
 Morton, H., see H. Hibbert.  
 Morton, H., 2396.  
 Morton, J., and United Alkali Co., 1090.  
 Morton, J. R., see J. W. Morton.  
 Morton, J. W., and J. R., 2689.  
 Morton, T., 2867.  
 Morton, W., 2624, 2633, 2737, 3050.  
 Morton-Liebschütz, 1638, 1758.  
 Morun, 695.  
 Morvillez, A., 674, 898.  
 Mosander, 1584.  
 Mosander, C., 1808, 1872.  
 Mosander, G., 1803.  
 Mosca, see F. Traetta-Mosca.  
 Moschkoff, A., see G. Malfitano.  
 Moscicki, 687.  
 Moscicki, I., see J. Kowalski.  
 Moscicki, I., 700, 703, 705, 709, 720, 721, 722, 838, 986, 1000, 1086, 1281, 2026.  
 Moscicki, J., 1218.  
 Moscowitz, J., see E. Silberman.  
 Moscowitz, J., see Z. Wolff.  
 Mosenthal, H. de, 67, 1412, 1755, 1759, 1765, 1772.  
 Moser, J., 389, 695.  
 Moser, L., 674, 1260.  
 Moses, A., see E. Mardles.  
 Mosher, C., 2703.  
 Mosher, D., see J. Ludlow.  
 Mosinger, E., 2609.  
 Moss, 2633, 2643, 2851.  
 Moss, G., 1394, 2855.  
 Moss, J., 1034.  
 Moss, P., 2859, 2919.  
 Moss, R., see P. Pfannenschmidt.  
 Mostert, F., 2709.  
 Mostowitch, V., 1080.  
 Mostyn, C., 2891.  
 Motay, see C. Du Motay.  
 Motay, see Tessie du Motay.  
 Motay, C. M. Tessie du, 895, 2827.  
 Mote, F., see W. Earles.  
 Motion, J., see E. Worden.  
 Mougey, 1572.  
 Moulin, M., and R. Vandoni, 1092.  
 Moulton, 2810, 2926.  
 Mount, W., 688, 1073.  
 Mountain Copper Co., 1076.  
 Mountsing, 286.  
 Mouquet, P., 2419.  
 Moureau, C., and A. Lepape, 688.  
 Mouren, C., 674.  
 Mouren, C., and A. Lepape, 674.  
 Moureu, C., 2522, 2779.  
 Moutier, J., and Dietzenbacher, 1016.  
 Moutlord, G. de, 2606.  
 Movina, 2794.  
 Mowbray, G., 534, 570, 617, 984, 1416, 1430, 1517, 1634, 1878, 2033, 2036, 2037, 2069, 2070, 2148, 2666, 2672, 2718, 2719, 2720.  
 Moxon, C., and J. Brand, 2727.  
 Moyat, 2622.  
 Moycho, S., see G. Wagner.  
 Moycho, S., and F. Zienkowski, 2524.  
 Moysan, G., 2707.  
 Muck, F., 1017, 1101.  
 Mudd, J., 2829, 2835.  
 Mühlbacher, see Parzer-Mühlbacher.  
 Muhle, 2569.  
 Mühlhäuser, O., 1071, 1079, 1208, 1239, 1639, 1807, 1821, 1822, 1823, 1824, 1848.  
 Mihsam, P., 2997.  
 Mulder, G., 2469, 2470.  
 Müller, see E. Justin-Müller.  
 Mueller, see A. Ducommun-Mueller.  
 Müller, 2124, 2640, 2820, 3075.  
 Muller, see also Muller.  
 Muller, A., see Orliavacer Chem. Fabrik.  
 Muller, A., 9, 78, 1074, 1593, 1688, 2466, 2471, 2596, 2597, 2655.  
 Mueller, C., 105, 1880, 2485, 2624, 2640.  
 Mueller, C., and D. Wolf, 90, 102, 2640, 2645.  
 Mueller, E., 231, 695, 1892, 2026, 2028, 2613, 2647, 2652, 2671, 2679.  
 Muller, E., and H. v. Ferber, 1293.  
 Muller, E., and O. Friedberger, 1293.  
 Mueller, E., and F. Spitzer, 953.  
 Mueller, E., and J. Weber, 953.  
 Müller, F., see E. Vongerichten.  
 Müller, F., 896, 2781, 2782.  
 Mueller, G., 227, 227, 2623.  
 Mueller, H., see F. Freyer.  
 Müller, H., see A. McKenzie.  
 Mueller, H., see W. de la Rue.  
 Müller, H., 184, 231, 245, 2601, 2610, 2618.  
 Müller, J., see Orliavacer, etc.

- Mueller, J., 185, 519, 2815.  
 Müller, K., 2560.  
 Mueller, K., J. Schwarz, and M. Scheid, 90, 2644.  
 Müller, L., and J. Bonnet, 2595.  
 Mueller, M., 283.  
 Mueller, M., and E. Meyer, 287.  
 Mueller, M., 930, 2633, 2640, 3069.  
 Mueller, M., and O. Heigis, 253, 300.  
 Müller, O., *see* F. van den Bosch.  
 Mueller, O., 73, 567, 1267, 2640, 2650, 3085.  
 Muller, O., and Gebr. Franke, 2633.  
 Müller, P., 664, 1060, 1071.  
 Müller, P., and R. Abegg, 2463.  
 Muller, R., *see* G. Bredig.  
 Müller, R., 90, 177, 608, 718, 2141, 2406, 2411, 2756, 3001, 3014.  
 Mueller, R., and Deutsche Celluloid Fabrik., 792, 2541.  
 Mueller, T., 449.  
 Mueller, T., and J. Decastro, 449.  
 Mueller, W., *see* F. Raschig.  
 Mueller, W., 946, 953, 1017, 2510, 2641.  
 Müller, W., and K. Dürkes, 1051.  
 Müller-Erzbach, W., 1017.  
 Müller-Jacobs, A., 32, 2031, 2047, 2921, 2959, 2965.  
 Müller-Thurgau, H., 446.  
 Muellet, C., 90.  
 Muellner, F., *et al.*, 286.  
 Muencke, 1624, 1785, 2963.  
 Muentz, A., *see* T. Schloesing.  
 Müntz, A., 2.  
 Muentz, A., and A. Girard, 729.  
 Müntzing, A., 568.  
 Muerling, V., *see* T. Nordenfeldt.  
 Mugdan, M., *see* P. Askenasy.  
 Mugdan, M., *see* W. Haehnel.  
 Mugdan, M., 1294.  
 Mugnier, J., 2642, 2647.  
 Muguet, M., *see* G. Brisselt.  
 Muir and Ritchie, 2785.  
 Muir, M., 1060, 2658.  
 Muirhead, G., 2826.  
 Mulcer, G., 161.  
 Mulder, I., 242, 520, 1524, 1570.  
 Mulder, E., 69, 1060, 1017, 1600, 1728.  
 Mulder, G., 2, 197, 945.  
 Mulderer-Huette, 1189.  
 Mulford, H., 2741.  
 Muller, 36, 92, 2474.  
 Muller, *see* H. Matthes.  
 Muller, *see also* Müller.  
 Muller, A., 36.  
 Muller, A., and R. M. D. Syndicate, Ltd., 2775.  
 Muller, B., 3066.  
 Muller, C., and D. Wolf, 329.  
 Muller, D., 1011.  
 Muller, E., 674, 717.  
 Muller, E., and F. Spitzer, 899, 945.  
 Muller, F., 102, 944, 2783.  
 Muller, K., 561.  
 Muller, M., 311, 805.  
 Muller, O., 71, 2634.  
 Muller, O., and Rheinische Kuntscide Fabrik, 92.  
 Muller, P., *see* A. Haller.  
 Muller, P., 311.  
 Muller, R., *see* M. Moest.  
 Muller, R., 592, 2541.  
 Muller, W., 1051, 2601.  
 Mulliken, S., and H. Scudder, 2406.  
 Mullner, F., 311.  
 Mullo, A., 944.  
 Multhaupt, O., 2737.  
 Multon, B., 2867.  
 Muncey, 2438.  
 Munch, *see* Trapp.  
 Munch, S., *see* F. Kusler.  
 Muncke, 2511.  
 Munday, G., and V. Evans, 2748.  
 Munder, A., 2564.  
 Munk, J., and T. Rosenheim, 346.  
 Munk, L., 2604, 2710.  
 Munktell, 50.  
 Munro, J., 1017.  
 Munroe, 980.  
 Munroe, C., 552, 554, 598, 674, 731, 1632, 1634, 1635, 1639, 1700, 1801, 1802, 1897, 2251, 2599, 2758, 2928, 2939, 2944, 2972, 2986.  
 Munroe, K., 205.  
 Munroe-Jewell, 2969.  
 Munsen, R., and L. Schischkoff, 1591.  
 Munster, E., 1017.  
 Muntz, 726.  
 Muntz, A., 238, 726.  
 Muntz, A., and P. Nottin, 1030.  
 Muntz, W., 3060, 3062.  
 Murai, M., 660.  
 Murbe, E., 311.  
 Murdoch, A., 448.  
 Murdoch, A., and Improved Process Manufacturing Co., 448.  
 Murman, E., *see* F. Flor.  
 Murphy, E., 1031.  
 Murphy, F., *see* P. Murphy.  
 Murphy, P., and F., 1308.  
 Murray, 2814, 2825.  
 Murray, G., 2601.  
 Murray, J., *see* I. Nelson.  
 Murray, J., and A. Levack, 2726.  
 Murray, R., 2838.  
 Murray, T., and E. Ricketts, 1086,

1251.  
 Murrow, Y., 77.  
 Murumow, J., J. Sack, and B. Tollens, 130, 172.  
*Muschamp, J., see F. Reeves.*  
 Muschamp, J., 1809.  
*Muschner, H., see O. Hauser.*  
 Muschner, H., 2991, 2992.  
 Musculus, 391.  
 Musculus, F., 431, 469, 470, 471, 475.  
 Musculus, F., and D. Gruber, 470, 472, 478.  
 Musculus, F., and J. de Mering, 417, 470.  
 Musgiller, F., 2790.  
*Musgrave, see Crittall.*  
 Musgrave, 2818.  
 Musgrave, E., 2851.  
 Musker, A., 2174, 2978.  
 Muskett, E., and Rubber Substitute, Ltd., 2602.  
 Muspratt, 1033.  
 Muspratt, J., 1060.  
*Muspratt, M., see United Alkali Co.*  
 Musset, F., 390, 412.  
 Mussgiller, F., 1619, 2789.  
*Muth, R. de, see E. Gazagne.*  
 Muthmann, W., 1017.  
 Muthmann, W., and K. Hofer, 674, 692, 693, 695, 712.  
*Mutler & Co., see Geltner, Mutter & Co.*  
 Muybridge, 2889.  
 M'Watters, S., 2836.  
*Myer, C., see H. St. Cl. Deville.*  
*Myer, G., see F. Schnell.*  
 Myers, F., 2737.  
 Myers, F., and H. Smythe, 2737.  
 Myers, R., 2594.  
 Myers, T., 430.  
 Myhill, A., 1039.  
 Mylius, 390, 391.  
 Mylius, E., 2438.  
 Mylius, F., 40, 160, 406, 409, 410, 413.  
 Mymms, H., 2650.  
 Mymms, W., 3079.  
 Naamlooze Venn. Algemeene Uitvinding Exploitatie Maatschappij, 2765.  
 Naamlooze Vennootschap Fabrik von Chem. Produkten, 3000, 3001, 3014.  
 Naamlooze Venn. Hollandsche Proteine Maatschappij, 2762, 2775.  
 Naamlooze Vennootschap Hollandsche Zijde Maatschappij, 177, 336, 2647, 2762.  
 Naaml. Venn. A. Jürgens' Vercenigde Fabrieken, 2762.  
 Naamlooze Vennootschap Nederlandsche-Maatschappij Tot Exploitatie Van Optimiet Fabrieken, 2775.  
 Naamlooze Vennootschap Nederlandsche Kunstzijdefabriek, 2650.  
 Naccari, A., and S. Pagliani, 2431 2441, 2503.  
 Nachmann, M., 2609.  
 Nadejdine, 2502.  
 Nadejdine, A., 718, 2431, 2498, 2499, 2504, 2505, 2506, 2507, 2508.  
 Nadejdine, S., 2496.  
 Nadeschdin, A., 1060, 2441.  
*Naef, see H. Wyss-Naef.*  
 Naef, E., 932.  
 Naef, E., and W. Thevenaz, 2535, 2775.  
*Naef, P., see G. Lunge.*  
 Naef, P., 1108, 1248, 1219.  
*Naef, H., see H. Wyss-Naef.*  
 Naegeli, 389, 390, 411, 464, 476, 479.  
 Naegeli and Loew, 326.  
 Naegeli, C., 47, 413.  
 Naegeli, F., 2522.  
 Naegeli, K., 393.  
 Naegeli, W., 391, 393, 406.  
*Naert, see L. Gevaert-Naert.*  
 Naeyer, L. de, 300.  
 Nacyer, T. de, 227, 3065.  
*Nagaoka, M., see O. Kellner.*  
 Nagel, 664, 2676.  
 Nagel, C., 2482.  
 Nagel, E., 2602.  
 Nagel, O., 1235, 1239, 2518.  
 Nageli, E., and H. Goldschmidt, 2510.  
 Nagelschmidt, C., 1276.  
 Nagecotte, J., 2784.  
 Nagy, D., 98, 300.  
 Nahnsen, R., 1056, 2393.  
 Naie, S. Mode, 2894.  
 Najlar, I., 2660.  
 Najlar, J., 2683.  
 Nakajima, A., 2641.  
 Nakamura, G., 3078.  
 Nakata, I., 234.  
 Nall, W., 2600.  
 Name, 2794, 2795.  
*Nameche, C., see V. Ansay*  
 Namias, R., 615, 1680, 2807, 2811, 2855, 2864, 2917.  
 Nanson, W., 300.  
 Nansoutty, M. de, 2720.  
*Napier, J., see T. Ewan.*  
 Napier, J., 1011, 1322.  
*Napier, T., see T. Ewan.*  
*Napper, S., see S. Courtauld & Co.*  
*Napper, S., see R. Robertson.*  
 Napper, S., 2649, 3069.  
*Naschold, W., see Chem. Fabr. Uerdin-*



- gen, etc.*  
 Naschold, W., 2518.  
 Nase, B., 300.  
 Nash, 829, 831, 832.  
 Nash, C., 2775.  
 Nash, L., *see* J. Coste.  
 Nash, T., 300.  
 Nash, W., *see* E. Palk.  
 Nash, W., 2558, 2601.  
 Nash, Vogel and Cadoret, 2650.  
 Nasini, R., *see* E. Paterno.  
 Nasini, R., 1060, 1101, 2434, 2442, 2503, 2507, 2509.  
 Nasini, R., and F. Anderlini, 674.  
 Nasini, R., and G. Carrara, 1017.  
 Nasini, R., and T. Costa, 1012, 1017.  
 Nasini, R., and A. Scafa, 1017.  
 Nasmith, J., 227, 3066.  
 Nass, 2597.  
 Nasse, 389.  
 Nasse, O., 417.  
 Nastjukow, 613, 617.  
 Nastukoff, A., 25, 122, 124, 161, 162, 172, 173, 174, 178, 235, 3021.  
 Nastukoff, A., and J. Kotjukow, 236.  
 Nastukoff, H., 660.  
 Natanson, E. and L., 718.  
 Natanson, L., *see* E. Natanson.  
 Nathan, F., 622, 638, 1941, 1946, 1979, 2076, 2102, 2336, 2397, 2545, 2951.  
 Nathan, F., and W. Rintoul, 2959.  
 Nathan, F., W. Rintoul and T. Baker, 1829, 1867, 2393, 2960, 2985.  
 Nathan, F., and J. and W. Thomson, 838, 839, 996, 1424, 2140.  
 Nathan, J., *see* F. Nathan.  
 Nathansohn, A., 243.  
 Nathanson, M., 2716.  
 Natho, E., 1129, 1299, 1309.  
 Natho, F., 2775.  
 Nathorst, A., 2784.  
 Nathurst, J., 2959.  
 Nation, E., 1391.  
 National Chemical Machine and Mfg. Co., 1070.  
 National Explosives Co. & W. Bates, 2079.  
 National Fire Protective Association, 2757.  
 National Sulfuric Acid Assoc., Ltd., 1010.  
 Nattere, 710.  
 Natural Color Pictures Co., 2883.  
 Nauckhoff, S., *see* A. Aubert.  
 Nauckhoff, S., 849, 2966, 2967.  
 Naudin, *see* Scheutzenberger.  
 Naudin, L., 2413, 2455, 2635, 3067, 3071.  
 Naudin, L., and J. Schneider, 2413.  
 Naughton, T., 2556.  
 Naumann, A., 674, 710, 715, 718, 2438, 2451.  
 Naumann, E., 939.  
 Nauton Freres, *see* Soc. Nauton Freres, *etc.*  
 Navarre, A., 300.  
 Navez, 2848, 2867.  
 Naville, A., P. and C. Guye, 696, 709, 1001.  
 Naville, P., *see* F. Briner.  
 Naville, P., *see* A. Naville.  
 Nawiasky, P., 2464.  
 Nawrocki, G., 2740.  
 Nawrocki, G. von, *see* G. Von Nawrocki.  
 Nawrocki, G. von, 2601.  
 Naylor, J., 450, 2705.  
 Nazari, V., 674, 935.  
 Neal, T., *see* C. Leach.  
 Neave, G., 2534.  
 Nebel, E., *see* H. Lagéau.  
 Nebrich, P., 300.  
 Necas, 311.  
 Necesne, N., 1006A.  
 Needs, A., 2715.  
 Neely, J., and S. Allen, 2412.  
 Neesen, O., 2593.  
 Nef, J., 1688, 1708, 2461.  
 Nef, J., O. Hedenburg and J. Glattfeld, 300.  
 Negreano, 2413.  
 Negrier, C., 1390.  
 Negrier, C. & Co., 137.  
 Neher, R., *see* E. Lauber.  
 Neidhardt, A., 2565.  
 Neil, J., 300.  
 Neiler, 2810.  
 Neilson, A., 660.  
 Neilson, C., 480.  
 Neimann, W., *see* C. Neuberf.  
 Nelaton, 2787.  
 Nelson, 1591, 2831, 2836.  
 Nelson, A., 2835.  
 Nelson, I., and J. Murray, 2748.  
 Nelson, J., *see* S. Born.  
 Nelson, J., *see* J. Northrup.  
 Nelson, J., *see* T. Taylor.  
 Nelson, J., 226.  
 Nelson, T., *see* J. Jardine.  
 Nemes, A., 1073, 1078, 1080, 1081, 1207, 1209, 1214, 1216, 1225, 1244, 1261.  
 Nemethy, E., 27, 300, 311, 1063, 1091.  
 Nemoto, I., 2583.  
 Nenki, M., and N. Sieber, 2453.  
 Nenninger, O., *see* J. Beck.

- Nenninger, R., 2601.  
*Neresheimer, see C. Harris.*  
 Neresheimer, E., 311.  
*Nerg, K. v. d., see Boeseken.*  
*Nernst, W., see K. Finckh.*  
 Nernst, W., 674, 693, 712, 716, 718,  
 870, 2457, 2503, 2999.  
 Nernst, W., and C. Hohmann, 2383,  
 2496.  
 Neron, E., 2695.  
 Nerson, M., 300.  
 Nesbitt, J., 2844.  
 Nessler, J., 459.  
 Nestell, R., and E. Anderson, 1098,  
 1099, 1337, 1338.  
 Nettl, A., 311.  
 Nettle, A., 287.  
 Nettlefold, F., 557, 1811.  
 Netz & Co., C. and F. Koch, 3024.  
 Neubauer, 69.  
 Neubauer, Kalous and Grotte, 2681.  
 Neubauer, A., 2384.  
 Neubauer, A., R. Grotte, and F.  
 Kalous, 2690.  
 Neubauer, E., 300.  
 Neubauer, H., 736.  
 Neubauer, O., and K. Fromherz,  
 2485.  
*Neuberg, O., see J. Tygube.*  
 Neuberg, C., 125, 2426.  
 Neuberg, C., and S. Miura, 427.  
 Neuberg, C., and W. Neimann, 184.  
 Neuberg, C., and E. Reinfurth, 2425.  
 Neuberger, A., 300, 694, 848.  
*Neuberger, H., see P. Bergh.*  
 Neuberger, H., 704.  
 Neuberger, H., and F. Bergh, 452,  
 453.  
 Neuberth, F., 2705.  
 Neuburger, A., 716.  
 Neuendorf, H., 1114.  
 Neue Photographische Ges., 2848,  
 2859, 2861, 2863, 2864.  
 Neuerburg, M., 1367.  
 Neuffer, G., 2603, 2618.  
 Neugröschl, S., 2729.  
 Neuhauss, G., 459.  
 Neuhauss, R., 2884.  
 Neuhoﬀ, W., 226.  
 Neumann, 212.  
 Neumann & Marx, 2723.  
*Neumann, A., see S. Neumann.*  
 Neumann, A., 689.  
 Neumann, A., and L. Zuckerbaecker,  
 2729.  
 Neumann, B., and H. Rose, 1006.  
 Neumann, E., 1456, 1518, 2601, 2923.  
*Neumann, F., see E. Parow.*  
 Neumann, F., 1207.  
 Neumann, G., 675, 1060.  
*Neumann, J., see G. Bultner.*  
*Neumann, M., see G. Lunge.*  
*Neumann, see Societe Neumann, etc.*  
 Neumann, M., 71, 1108, 1114, 1222,  
 1244, 1260, 1283, 3003.  
 Neumann, P., 2509.  
 Neumann, R., 2739.  
 Neumann, S. and A., 718.  
 Neumann & Co., 2468, 2488.  
 Neumann & Co., and J. Zeltner, 2487.  
 Neumann-Wender, 2479.  
 Neumark, M., 1074.  
 Neumayer, 2782.  
 Neumayer, L., 2781, 2784.  
 Neumeyer, G., 1617.  
 Neunkirchnef Druckfabriks, 233.  
 Neupert, J., 2693.  
 Neuport, E., 2744, 2746.  
 Neuss, O., and H. Steigler, 935.  
 Neuville, F. de, 2863.  
 Neuville, G. de, 2859.  
 Nevens, L., 685.  
*Neville, F., see C. Heycock.*  
 Nevin, N., 2711.  
 Nevole, M., 2439.  
 New, E., 2724.  
 Newbaecker, D., 287.  
*Newbold, H., see E. Oberle.*  
 Newbold, J., 2723.  
*Newcomb, see Osborn, Newtomb & Co.*  
 Newcombe, E., 346.  
 Newell, A., 2730.  
 Newell, A., and R. Marx, 300.  
 Newell, H., 226.  
 New Explosives Co., 2168, 2189.  
 New Explosives Co., Ltd., and J.  
 Carter, 2173, 2944.  
 Newfield, J., and J. Marx, 2309, 2313.  
*New Jersey Zinc Co., see W. Kelsey.*  
 New Jersey Zinc Co., 1024, 1108,  
 1164, 1167, 1171, 1192.  
 Newlands, B., 281, 1085.  
*Newman & Guardia, Ltd., see A. New-*  
*man.*  
*Newman, A., see T. Bolam.*  
 Newman, A., 1392.  
 Newman, A., 2737.  
 Newman, A., and Newman &  
 Guardia, Ltd., 2891.  
 Newman, T., 2396, 2446.  
 Newsome, T., 570.  
*New Sunlight Incandescent Co., Ltd.,*  
*see J. Duncan.*  
 Newth, G., 710, 2435.  
 Newton, 293, 2807, 2825, 2826, 2839,  
 2855, 2885.  
 Newton, A., 1011, 2706, 2875, 2880.  
 Newton, A., and A. Bull, 2872, 2874.

- Newton, F., 2915.  
 Newton, F., 2827.  
 Newton, H., 2831, 2832, 2833, 2838, 2839, 2841, 2842, 2844, 2847.  
 Newton, M., 2383, 2693.  
 Newton, P., 300.  
 Newton, S., 2689.  
 Newton, W., 675, 727, 742, 1011, 2799, 2827, 2869, 2901, 2910.  
 Newton, W., and E. Shepherd, 1600.  
 Neyman, *see* H. v. *Splawa-Neyman*.  
 Neymann, P., *see* G. Dossilman.  
 Neymann, P., 2565.  
 Neyt, A., 2914.  
 Nibelius, A., 790, 1291.  
 Nichol, 2005.  
 Nichols, 2495.  
 Nichols, C., *see* A. Luck.  
 Nichols, E., and B. Snow, 1017.  
 Nichols, G., *see* J. Herreshoff.  
 Nichols, G., W. Nichols and J. Herreshoff, 1278.  
 Nichols, H., *see* J. Herreshoff.  
 Nichols, H., 2835.  
 Nichols, J., 2716.  
 Nichols, W., *see* G. Nichols.  
 Nichols, W., 1313.  
 Nichols Chemical Co., 1079.  
 Nichols Copper Co., and H. Stout, 1072.  
 Nichols Copper Co., 1073, 1075, 1079.  
 Nichols Copper Co., and Stout, 1073.  
 Nicholls, W., *see* T. Nicholls.  
 Nicholls, T. & W., 2667, 2676, 2742.  
 Nicholson, 3049.  
 Nicholson, B., and T. Palmer, 1292.  
 Nicholson, E., 2084.  
 Nicholson, E., and A. Price, 1621.  
 Nicholson, J. & Sons, *see* A. Beck.  
 Nickel, 242, 243.  
 Nickel, E., 262, 300.  
 Nickel, J., 1051.  
 Nickerson, 2717.  
 Nickerson, F., 2679, 2681, 2685, 2690, 2720.  
 Nickles, 1585.  
 Nickles, J., 1592, 1701.  
 Nicles, J., 2564.  
 Nicloux, M., 2411.  
 Nicloux, M., and A. Placet, 2411.  
 Nicol, 2805, 2903.  
 Nicol, A., 2915.  
 Nicol, J., 2801, 2808, 2835, 2840, 2842, 2844, 2847, 2864, 2914.  
 Nicolardot, P., 281.  
 Nicolardot, P., and G. Chertier, 1719, 1905, 1906, 2309.  
 Nicolardot, P., and L. Clement, 2570.  
 Nicolardot, P., and H. Vouloud, 2319.  
 Nicole Freres, 2737.  
 Nicolle, A., 311.  
 Niedenführ, 839, 1213.  
 Niedenführ, H., *see* F. Luty.  
 Niedenführ, H., *see* L. Rohrmann.  
 Niedenführ, H., 703, 985, 1033, 1063, 1093, 1190, 1218, 1239, 1240, 1271, 1282.  
 Niedenführ, N., 987.  
 Niedenführ, O., 1072, 1078, 1081, 1114, 1115, 1131, 1210, 1212, 1217, 1218, 1220, 1221, 1250, 1271, 1280, 1283.  
 Niederist, G., 2420.  
 Niederstadt, 2851.  
 Niederstadt, B., 2479.  
 Nield, J., 1427.  
 Nielsen, H., *see* Nitrogen Products and Carbide Co., Ltd.  
 Nielsen, *see* S. Schmidt-Nielsen.  
 Nielsen, H., 751, 1270.  
 Niemilowicz, L., 2432.  
 Nienstadt, A., 2567, 2679.  
 Nienstadt, C., 2863.  
 Niepce, V. de, 2797.  
 Nierenstein, M., *see* Drabble, E.  
 Niesz, F., *see* F. Jurgensen.  
 Niethammer, F., *see* C. Haussermann.  
 Nieuwarts, F., *see* J. Bourgeois.  
 Niewenglowski, G., 2826.  
 Niggemann, H., *see* F. Fischer.  
 Niggemann, H., *see* K. Scharfer.  
 Niggemann, H., 898.  
 Niggel, *see* A. v. Bayer.  
 Niggel, 242.  
 Niggel, M., 263.  
 Nightingale, J., *see* J. Davidson.  
 Nigro, J., and P. Hollande, 1781.  
 Nikaido, Y., 1051, 1328.  
 Nikolsky, W., 2555.  
 Niles, K., 2940.  
 Nimet, A., 2718.  
 Ninnis, T., 2748.  
 Nishida, H., 181, 300, 566, 1119, 1736, 1879, 2753, 2757, 3020.  
 Nisjenson, H., 1336.  
 Nitchie, C., 1050.  
 Nithack, R., 900, 945.  
 Nitritfabrik Akt. Ges., 2391, 3005, 3016, 3042.  
 Nitritfabrik Copenick, 3003.  
 Nitrogen Gesellschaft, 690.  
 Nitrogen, Ltd., 1005.  
 Nitrogen Co., *see* A. Acker.  
 Nitrogen Co., 685, 689, 894, 921, 1004, 1006B.  
 Nitrogen Corporation, *see* J. Clancy.  
 Nitrogen Corporation, 899, 921, 926, 1005, 1006A, 1006B.

- Nitrogen Products and Carbide Co., 675, 930, 935.  
 Nitrogen Products and Carbide Co., Ltd., and H. Nielsen, 1270.  
 Nitrogen Products Co., 724, 847, 895, 935, 1005, 1006*B*, 2551.  
*Nitrogene*, see *Soc. Anon. Le Nitrogene*.  
 Nitroglycerin Aktiebolaget, 1870, 2959, 2966, 2967.  
*Nitsche, P.*, see *G. Grube*.  
*Nitsche, P.*, 311.  
 Nitshill, A., 3062.  
 Nitta, S., 2582.  
 Nitykowski, 457.  
 Nitzelnadel, K., 285, 319, 1804, 1873.  
 Nivling, W., 426.  
 Nixon, A., 2726.  
 Nixon, J., 2724.  
 Nixon Nitration Works, 1470.  
*Noa, B.*, see *E. Noa*.  
*Noa, E.*, see *H. Schwarzberg*.  
*Noa, E.*, 2693.  
*Noa, E. and B.*, 2684.  
*Noack*, see *Schutze*.  
*Noad, J.*, see *C. Hime*.  
*Noad, J.*, 2474, 2600.  
*Nobbe, F.*, 460.  
*Nobel*, see *Dynamit Aktien Gesellschaft Nobel*.  
*Nobel*, 1833, 2118, 2121.  
*Nobel, A.*, 1369, 1392, 1421, 1606, 1619, 1785, 1798, 1802, 1850, 1853, 1867, 1952, 2098, 2101, 2104, 2105, 2106, 2386, 2510, 2538, 2544, 2599, 2606, 2634, 2925, 2928, 2944, 2945, 2949, 2959, 2965, 2969, 2978, 2980.  
*Nobel, A., & Co.*, 151.  
*Nobel, A., and F. Abel*, 1616.  
*Nobel, A., and G. Fehrenbach*, 1101, 1131.  
*Nobel, A., and A. Liedbeck*, 211.  
*Nobel's Explosives Co., Ltd.*, see *W. Bousfield*.  
*Nobel's Explosives Co., Ltd.*, see *C. Lundholm*.  
*Nobel's Explosives Co., Ltd.*, see *W. Rintoul*.  
 Nobel's Explosives Company, 644, 645, 656, 658, 659, 1898, 1946, 1949, 2057, 2072, 2075, 2084, 2085, 2133, 2151, 2153, 2169, 2176, 2181, 2544, 2545.  
 Nobel's Explosives Co., and D. Cross, 701, 944.  
 Nobel's Explosives Co., and M. Pier, 1006*A*.  
*Noble, A.*, 1789, 1800, 1801.  
*Noble, M.*, 2900.  
*Nocard*, 2785.  
*Nocard and Roux*, 2784.  
*Nodon, A.*, 168, 235, 660, 914, 986, 2639, 2652, 2775.  
*Nodon, Bretonneau and D'Alton-Shee*, 300.  
*Noe, E.*, 2775.  
*Noh, H.*, 1005.  
 Noeller, 728.  
 Noellner, 726.  
 Nolting and Herzberg, 2775.  
 Nölting and Rosenstiehl, 613.  
 Nölting, E., 161, 3078.  
 Nolting, E., and A. Collin, 1633.  
 Nolting, E., and Rosenthal, 176, 613.  
*Noelling, F.*, see *M. Baltegay*.  
 Noerdlinger, H., 2775.  
 Norrenberg, R., 1313, 1348.  
 Nogues, P., and Proveux, H., 2669.  
*Nolan, T.*, see *W. Rintoul*.  
*Nolda, E.*, see *W. Markvald*.  
 Noll, W., 1273.  
 Nolte, O., 675.  
 Nonnet, L., 1062, 1084, 1087, 1093.  
*Nottin, P.*, see *A. Muntz*.  
 Norath, J. von, 2906.  
 Nordaby, W., 2564.  
 Nord-deutsche Chemische Fabrik, 1216.  
 Norddeutsche Hütte A. G., and Behrens, 1088.  
 Norddeutsche Präparaten, Fabr. Heydorn & Biegel, 1031.  
 Nordenfeldt, O., 2975.  
 Nordenfeldt, O., and E. Bjorkman, 1624.  
 Nordenfeldt, T., and V. Meurling, 567, 1634.  
 Nordenskjöld, 1524.  
 Nordheim, L., 2518.  
 Nordyke & Marmon Co., 900, 942, 943, 1203.  
 Norfolk, F., 445, 446.  
*Norlin, E.*, see *P. Klason*.  
 Norman, C. van, 2704, 2705, 2709.  
 Norman, F., F. Willmot, W. Buchanan-Taylor and T. Dawe, 2897.  
 Normandy, A. de, 1011.  
 Normann, W., 83, 287, 1705.  
 Normant des Varnes, le, and A. Regiaouf de Vains, 300.  
 Noroy, C., 1819.  
 Norris, 2826, 2907.  
*Norris, F.*, see *W. Giles*.  
 Norris, H., 2826, 2838, 2843.  
 Norris, J., 2443.  
 Norris, J., and E. Green, 2443.  
 Norris, R., 2748, 2799, 2825, 2826, 2827, 2829, 2830, 2836, 2847.

- Norris, W., see C. Bailey.*  
 Norske Aktieselskab for Elektrokemisk Industri, 1006*A*, 1006*B*, 1292.  
 Norske Aktieselskab for Elektrokemisk Industri and B. Halvorsen, 697, 699, 986, 989, 1355.  
 Norsk Hydro-Elektrisk Kvaestofaktieselskab, 675, 695, 709, 715, 719, 731, 813, 839, 843, 853, 878, 879, 881, 892, 893, 899, 935, 951, 955, 990, 1004, 1005, 1006*A*, 1306, 1381, 1387, 1392, 1517.  
 Norsk Hydro-Elektrisk Kvaestofaktieselskab and E. Collet, 988.  
 Norske Kvalstofkompagni, 704.  
 Norske Saltpeterverker, 879.  
*Norske Saltpeterverker, see also De-Norske Saltpeterverker.*  
 North American Chemical Co., 2775.  
*North British Rubber Co., see W. Williams.*  
*North, G., see R. Pfaffle.*  
 Northrop, J., L. Ashe and R. Morgan, 2397.  
 Northrup, F., 2685.  
 Northrup, J., 2397.  
 Northrup, J., and J. Nelson, 438.  
 Norton, 642, 727.  
 Norton, J., 1590.  
 Norton, L., and C. Prescott, 2453, 2500.  
 Norton, T., 198, 311, 873, 886, 913, 925, 1213, 1235, 2422.  
 Norton, W., 1076.  
 Nossian, W., 435.  
*Noth, H., see E. Fischer.*  
 Noton, M., 2803, 2825, 2835.  
 Nottelle and R. Heraud, 3059.  
 Nottelle, L., 2550, 2755.  
 Nottelle, L., and L. Leroux, 1805, 1875, 2720.  
 Nougès, P., and H. Proveux, 1787, 1789.  
*Nourbourn, J., see A. Latham.*  
 Novak, F., 2857.  
 Novak, J., 287, 311.  
 Novak, M., 1006*B*.  
 Novel, J., 2419.  
 Nover, C., 3015.  
 Noverre, W., 2804.  
 Npvy, F., 2785.  
 Nowak, C., 2562.  
 Nowak, E., 422.  
 Nowak, H., 2647.  
*Nowak, J., see J. Sergen.*  
 Nowak, O., 2762.  
 Nowicki, A., 2888.  
 Nowicki, E., 564, 1875.  
 Nowicki, R., 853.  
 Nowotny, A., 2716.  
 Nowotny Brothers, 2606.  
 Noyer, 1033.  
 Noyer, G., 2400, 2991, 3033.  
 Noyes, A., 675.  
 Noyes, A., and G. Sammett, 2406.  
 Noyes, J., 2716.  
 Noyes, S., 1017.  
 Noyes, W., 712, 2516, 2522.  
 Noyes, W., and L. Kyriakides, 2514.  
 Noyes, W., and A. Patterson, 2522.  
 Noyes, W., and R. Warfel, 2417.  
 Nürnberger Consortium f. elektrochem. Ind., 1630.  
 Nürnberger Zelluloidwaren Fabrik Gebr. Wolff, 2694, 2695.  
 Nuessle, F., 2742.  
 Nunez, V., 300.  
*Nuranen, W., see M. LeBlanc.*  
 Nuranen, W., and M. LeBlanc, 675, 704.  
 Nussbaum, F., 454, 2762.  
 Nussbaum, J., and W. Ebert, 300.  
*Nuttall, see Ioco Proofing Co.*  
*Nuttall, W., see W. Cooper.*  
 Nuttall, W., and J. Maden, 2730.  
*Nydegger, O., see Friedheim.*  
 Nylander, W., 348, 716, 718.  
 Nyman, M., 437.  
*Oaksford, B., see W. Clifton.*  
 Oates, P., 2563.  
 Oates, W., and E. B. Robinson, 1270.  
*Ober, see Whitney.*  
*Ober, J., see W. Whitney.*  
 Oberfell, G., and H. Boyd, 2469.  
*Oberländer, L., see J. Saxl.*  
 Oberlander, 3063.  
 Oberle, E., 2595.  
 Oberle, E., and H. Newbold, 2559, 2624.  
 Oblasser, A., and C. Theryc, 958, 2612, 2701.  
 Obregia, 2784.  
 O'Brien, A., 1229, 1291, 2557.  
 Obermaier, J., 227.  
 Obermayer, A., 675, 1060.  
 Obermüller, 1715, 2324, 2348, 2349.  
 Obermuller, P., 2362, 2363.  
 Obernetter, 2851, 2855, 2857, 2901.  
 Obernetter, J., 2838, 2858, 2867, 2887, 2906, 2907, 2919.  
 Obert, L., J. Vasseur and A. Houbigant, 288.  
*Obshchestvo proizvodstva & torgovli resinovymi izdelkami "Bogatyr," see "Bogatyr" Society for the Manufacture and Sale of Rubber Goods.*

- Ochs, K., 1060.  
 Ochsenius, 726.  
 Oechsner de Coninck, 2460.  
 Oechsner de Coninck, W., 342, 415.  
 Oechsner de Coninck, W., and A. Raynaud, 414, 477.  
 O'Connor, F., 2861.  
 O'Connor, J., 2775.  
 Oddo, B., 1699, 1790, 2312, 2467, 2541, 2924.  
 Oddo, G., 675, 719, 1022, 1023, 1063, 1101, 1125, 2461, 2514, 2522.  
 Oddo, G., and G. Anelli, 1312.  
 Oddo, G., and G. Cusmano, 2436.  
 Oddo, G., and E. Scandola, 2464, 2491.  
 Oddo, G., and E. Serra, 1017.  
 Oddone, E., *see* S. Pagliani.  
 Oden, S., 1036.  
 Odet and Vignon, 721.  
 Odling, W., 1101.  
 Oehler, K., 805.  
 Oehrich, C., 2560.  
 Oehmler, R., 2591.  
 Oelker, A., 1416.  
 Oelmühle, *see* Gocher-Oelmühle.  
 Oerr, D., 2692.  
 Oertel, R., 128, 175.  
 Oeser, E., 431, 2875, 2899.  
 Oeser, H., 2486.  
 Oesterheld, G., *see* F. Fichter.  
 Oesterheld, G., 675, 944.  
 Oesterreichische Sodafabrik, 1029.  
 Oesterreichische Sodafabrik, *see also* Erste Oesterreichische Sodafabrik.  
 Oesterreichische Pluviusin-Akt, 2609, 2620.  
 Oesterreichischer Verein, 813.  
 Oesterreichischer Verein für Cellulosefabrikation, 311.  
 Oesterreichische Ver. Chemische u. Metallurgische Produktion, 281, 900, 933, 935, 941, 943, 1006A, 1006B.  
 Oestreicher, I., 2894.  
 Oetker, A., 2671, 2775.  
 Oettinger, 2787, 2793.  
 Offenbacher Celluloid Fabrik, 2720.  
 Offerhaus, C., 1076.  
 Offord, R., *see* W. Ashman.  
 Ofner, R., 2485.  
 Ogate, M., 1094.  
 Ogawa, E., 2682.  
 Ogawa, M., *see* E. Divers.  
 Ogawa, Y., and S. Okubo, 102.  
 Ogawa, Y., S. Okubo and N. Satake, 103.  
 Ogier, J., *see* M. Berthelot.  
 Ogier, J., 718.  
 Ogilvy, 2838.  
 Ogle, T., 513.  
 Ogliarolo, A., 1017.  
 Ogny, C. d', 1087.  
 Ogston, G., 700.  
 O'Hanlon, F., 2702.  
 Ohlemann, 2412.  
 Ohlsson, E., 2538.  
 Ohlsson, J., 2697.  
 Ohnesorge, O., 675, 2560.  
 Ohno, K., 2552, 2959.  
 Ohr, F., 2493.  
 Ohr, F., and O. Schlegel, 2493, 2582.  
 Ohse, W., 2917.  
 Okamura, 242.  
 Oke, A., *see* J. Paterson.  
 O'Keefe, D., 2621.  
 Okell, J., 1811, 2946.  
 Oknow, 1043.  
 Okubo, S., *see* Y. Ogawa.  
 Olander, A., *see* J. Lostumby.  
 Olbrich, E., 2857.  
 Oldekop, H., 2422.  
 Olden, T., 2998.  
 Oldham, G., 225.  
 Olding, 1017.  
 Oldman, G., 3066.  
 Oldroyd and Blakeley, 3078.  
 Olie, N., 2422.  
 Olier, A., *see* Soc. A. Olier & Co.  
 Olin, A., 2566.  
 Olivari, F., 2411.  
 Oliver, F., 300, 2579, 2612, 2624, 2670, 2679, 2687, 2693, 2697, 2709.  
 Oliver, G., *see* R. Annison.  
 Oliver, G., 2615.  
 Oliver, J., 1011, 2893.  
 Oliver, M., *see* E. Thomas.  
 Oliver, M., 3076.  
 Oliver, M., and E. Thomas, 3076.  
 Oliver, T., 990, 1003, 1209, 1240, 1388, 1392.  
 Olivier, 1347.  
 Olivier, E., 1011.  
 Olivier, L., *see* A. Etard.  
 Olivier, L., 1017.  
 Olivier, M., 3076.  
 Oliviero, *see* G. Bonchardat.  
 Olle, A., 1322.  
 Olley, W., 2914.  
 Ollion, E., 2383.  
 Olmstead, L., *see* R. Davis.  
 Olsen, J., 2986.  
 Olson, K., 2587.  
 Olsson, Z., 2660.  
 Olszewski, A., 2673, 2688.  
 Olszewski, K., *see* S. v. Wroblewski.  
 Olszewski, K., 675, 692, 713, 715, 2453.

- Olt, 2782.  
 Oman, E., 197, 283, 284, 311, 664, 1880.  
 Omelianski, V., 206, 339, 340, 342, 344.  
 Omelianski, W., 340, 348.  
 Ommeganck, 2825.  
 Ommeganck, C., 2826.  
 Omodei, D., *see* G. Vincentini.  
 Omodei, D., 1017.  
 O'Neil, A., *see* A. Broadbent.  
 O'Neil, A., 2906, 2983.  
 O'Neill, C., 216.  
 O'Neill, J., 454, 2728.  
 Onsager, G., 312, 2425, 2647, 2648.  
 Oordt, *see* G. van Oordt.  
 Oordt, G. van, *see* F. Haber.  
 Opel, T., 2737.  
 Opfermann, E., 2624.  
 Opfermann, E., E. Friedmann and Akt. Ges. f. Maschinenpapierfabrikation, 285.  
 Opitz and Kayser, 312.  
 Opl, C., *see* H. v. Miller.  
 Opl, J., *see* M. Moest.  
 Opl, C., 312, 1030, 1212, 1225.  
 Opl, C., and Erste Oesterr. Fabr., 1350.  
 Opl, R., 1122.  
 Opl, H., 288.  
 Opolski, S., 1017.  
 Oppenheim, A., *see* E. Emmerling.  
 Oppenheim, A., *see* F. Versmann.  
 Oppenheim, A., 1060.  
 Oppenheim, A., and R. Feuer, 2596.  
 Oppenheimer, C., 715.  
 Oppermann, 1629.  
 Oppler, T., 1313.  
 Oran, 2787.  
 Orange, P., and L. Benis, 2767.  
 Orans, L., 2910.  
 Orban, M., 2701.  
 Orcutt, C., 2709.  
 Ordnance Improvement Co., 2979.  
 Ordonneau, C., 2476.  
 Ore, 2787.  
 Organic Salt & Acid Co., 2540.  
 "Origo," *see* Societ  anonyne "Origo."  
 Orla-Jensen, *see* Bayer.  
 Orljavacer Chemische Fabrik, 205.  
 Orljavacer Chem. Fabrik, J. and A. M ller, 2407.  
 Orloff, E., 916, 2436, 2444.  
 Orloff, N., 1017, 1035.  
 Orlow, E., 675, 899, 2407, 2464.  
 Orlow, N., 1335.  
 Orlowski, *see also* J. D' rlowski.  
 Orlowsky, J., d' 202, 205.  
 Orme, F., *see* W. Bate.  
 Ormondroyd, G., 225.  
 Ornstein, G., 3000, 3024.  
 Ornstein, L., 2567, 2775.  
 Orr, A., 1636, 2385.  
 Orsman, W., *see* Roburite Explosives Co.  
 Orsman, W., 2962.  
 Ortenblad, T., 277.  
 Ortmann, M., 2676.  
 Ortmann, R., 2542, 2755, 2895.  
 Orton, K., *see* D. Challaway.  
 Orton, K., *see* A. Smith.  
 Orton, K., M. Edwards and H. King, 2998.  
 Orton, K., and W. Gray, 675, 953.  
 Orton, K., and D. Jones, 2445, 2446.  
 Orton, K., and P. McKie, 2392.  
 Osann, G., 1017, 1101.  
 Osborn, *see* De Ronda Osborn Co.  
 Osborn, Newcomb & Co., 2665.  
 Osborn, A., 454.  
 Osborn, S., *et al*, 1086.  
 Osborne, G., 2562.  
 Osborne, J., 2707, 2742.  
 Osborne, N., 2425.  
 Osborne, T., 2551.  
 Osborne, T., and S. Clapp, 2550.  
 Osborne, T., and R. Cornelison, 2550.  
 Osborne, T., C. Leavenworth and C. Brautlecht, 522.  
 O'Shaughnessy, F., *see* H. Richmond.  
 O'Shea, L., and C. Brooks, 1626, 2946.  
 Osipoff, J., 2452.  
 Osmond, F., *see* G. Witz.  
 Osmose, *see* Elektro-Osmose.  
 Ossokin, M., *see* Butlerow.  
 Ossa, *see* B. Diaz-Ossa.  
 Ost, 133, 138, 139, 140, 213, 391, 2851, 3020.  
 Ost, A., 2855.  
 Ost, H., 46, 84, 155, 175, 190, 202, 211, 385, 390, 480, 547, 662, 1736, 2279, 2280, 2541, 2753, 2988, 2992, 3022.  
 Ost, H., and T. Katayama, 188, 2991.  
 Ost, H., and F. Klein, 416, 3021.  
 Ost, H., and R. Prosiegel, 2988.  
 Ost, H., and F. Westhof, 44, 54, 128, 151, 217, 1884.  
 Ost, H., F. Westhoff and L. Gessner, 480, 3083.  
 Ost, H., and L. Wilkening, 176, 202, 330.  
 Ostdeutsche Kalkstickstoffwerke u. Chem. Fabriken, 1004.  
 Ostenburg, J., 454.  
 Ostenberg, Z., 95, 271, 660, 1909, 2550, 2650.

- Ostenhoudt, R., 2714.  
 Osterberg, A., and E. Kendall, 928.  
 Osterberger, H. and E. Capelle, 1382.  
 Ostermann, L., 2543.  
 Osterreicher, 727.  
 Ostersetzer, J., *see* W. Goulding.  
 • Ostrander, L., 2599.  
 • Ostrejko, R., 1306.  
 Ostrogovich, A., *see* Istrati, C.  
 Ostromislenski, I., 2767, 2775.  
 Ostorog, S. d', 2907.  
 Ostrowmislensky, I., *see* "Bogatyr" So-  
 ciety, etc.  
 Ostwald, 895, 912, 914, 915, 943,  
 1749, 2282, 2283.  
 Ostwald, O., 911.  
 Ostwald, W., 718, 837, 895, 897, 952,  
 1060, 1518, 2363, 2364, 2497, 2499,  
 2503.  
 Ostwald, W., and E. Brauer, 897, 911.  
 Ostwald-Poiseuille, 1736, 2278.  
 O'Sullivan, 420.  
 O'Sullivan, C., 389, 390, 406, 467,  
 471, 472, 478.  
 Oswald, 475, 2278.  
 Oswald, A., *see* C. Rogers.  
 Otin, C., 1293.  
 Ott, A., 2864.  
 Ott, E., 390.  
 Ott, E., and W. Butterfield, 2495  
 Ott Bros., 2684.  
 Otterdahl, E., *see* O. Carlson.  
 Ottermann, G., 927.  
 Otto, 494, 1574, 2901.  
 Otto, A., 840.  
 Otto, C. & Co., 1006A.  
 Otto, D., 300.  
 Otto, F., 1581.  
 Otto, G., 2741, 2742.  
 Otto, R., *see* R. Casanova.  
 Otto, R., *see* H. Beckurts.  
 Otto, R., 242.  
 Otto, R., and A. Rosing, 1017.  
 Otto, R., and J. Tröger, 2775.  
 Ottorepetz, V., 3080.  
 Oulman, C., *see* A. Tabernier.  
 Overbeck, O., 2422, 2557.  
 Overbury, J., *see* H. Sanborn.  
 Overhage, C., 390.  
 Oritz, F., *see* S. Katz.  
 Owen, F., *see* J. Morgan.  
 Owen, T., 958.  
 Owen, W., 2425.  
 Owens, W., *see* J. Vose.  
 Oxland, C., *see* E. Oxland.  
 Oxland, R., 1584, 2150.  
 Oxland, R. and C., 1072, 1074.  
 Oxley, A., 2467.  
 Oyonnilhe, *see* Societe L'Oyonnilhe.  
 Ozeki, K., 2425.  
 "P," 1267.  
 Paul, C., *see* G. Mehrrens.  
 Paal, C., and A. Ganghofer, 736.  
 Paal, C., and F. Hoernstein, 183.  
 Paal, C., and G. Mehrrens, 736.  
 Paar, J., 2835.  
 Pabst, A., *see* C. Girard.  
 Pabst, J., *see* A. Girard.  
 Pabst, J., 2503.  
 Pabst, J., and A. Girard, 1306.  
 Pachtmann, E., 2980.  
 Packard, C., *see* W. Mills.  
 Packard, E., Co., *see* W. Mills.  
 Pacaud, L., *see* H. Framery.  
 Pacaud, L., and H. Framery, 2737.  
 Packer, J., 2114, 2115.  
 Pacottet, P., 1093.  
 Padberg, C., *see* G. Vortmann.  
 Padoa, M., and L. Mervin, 2467.  
 Padoa, M., and B. Savare, 410.  
 Paffgen & Schwartz, 2569.  
 Paesler, 312.  
 Page, C., and A. Urmetzer, 2620.  
 Page, J., 2594, 2728.  
 Page, S., 2723.  
 Pages, A., and R. Duchemin, 2395.  
 Pages, Camus et Cie, 2396, 2407.  
 Pages, Camus et Cie and P. Bardy,  
 2775.  
 Paget, *see* Bottomley.  
 Paget, C., 2728.  
 Paget, I., 2066, 2385, 2457, 2487,  
 2491, 2495, 2500, 2581, 2693.  
 Paget Prize Plate Co., 2857.  
 Pagliani, S., *see* A. Naccari.  
 Pagliani, S., 1060, 1064, 1380, 2430,  
 2439.  
 Paghani, S., and A. Batelli, 1060,  
 2431.  
 Pagliani, S., and A. Eme, 2430.  
 Pagliani, S., and E. Oddone, 952.  
 Pagliani, S., and L. Palazzo, 2431.  
 Pakes, W., and W. Jollyman, 675.  
 Pain, A., *see* C. Fawcitt.  
 Painter, K., 2726.  
 Paira, A., and Administration der  
 Minen von Buchsweiler Akt. Ges.,  
 429.  
 Pairs, A., 2557.  
 Pairsseau, J., *see* E. Heusch.  
 Pâisscau-Feil, C., 2586, 2589.  
 Paiton, J., 484.  
 Palaschkowskie, S., 1030.  
 Palatine Artificial Silk Yarn Co.,  
 Ltd., 88.  
 Palazzo, L., *see* S. Pagliani.  
 Palet, L., 1335.  
 Palk, E., H. Basset and W. Nash,  
 2586.  
 Pallotti, V., 534, 2048.



- Palmen, J., see G. Harries.*  
 Palmer, A., 232, 2638.  
 Palmer, C., 2407, 2910.  
 Palmer, F., 2917.  
*Palmer, H., see A. Denison.*  
 Palmer, H., 2748, 2879, 2888, 2921.  
 Palmer, I., 450, 3066.  
 Palmer, J., 232.  
*Palmer, R., see Hawley.*  
 Palmer, R., 2409.  
*Palmer, T., see B. Nicholson.*  
 Palmetto, 2640.  
 Palser and Howland, 292.  
 Paltscho, E., 2712.  
 Pampe and Trolle, 2417.  
 Pampe, F., 2414, 2476.  
 Pampe, O., 2483.  
*Panek, K., see S. Bondzynski.*  
 Panels, Ltd., 3062.  
 Panichi, U., 1035.  
*Panke, R., see T. Ehninger.*  
 Pannier, 1630.  
 Pantanelli, E., 2424, 2426.  
 Pantasote Leather Co., 2603.  
 Panzer, A., 2757.  
 Panzer, T., 675, 695.  
 Panzl, R., and A. Toretscher, 957.  
*Paolini, V., see L. Bolviano.*  
 Paolini, V., 2393.  
*Papaconstantinou, B., see D. Tsakalos.*  
*Pape, H., see J. Babe.*  
 Paquie, F., 2775.  
 Parade, E., 3044.  
 Paraf, A., 78.  
 Paraf, J., 2600.  
 Parajpe, G., 2399.  
 Parazone Co., 959.  
 Parcon, J., 592.  
 Pardee, M., R. Hasche and E. Reid, 2446.  
 Parent, J., 1072, 1073, 1075, 1230, 1235, 1266, 1282, 1291.  
*Parenteau, M., see W. Force.*  
*Pariente, L. de, see P. Rioux.*  
 Paris, P., 2979.  
 Parish, E., and W. Livermore, 1588, 2787.  
*Parisiene de Couleurs d'Aniline, see Cie Parisienne, etc.*  
*Park House Dyeing Co., see S. Wood.*  
 Park, W., 2726.  
 Parke, Davis and Co., 2740.  
 Parker, C., 790.  
 Parker, E., 377.  
*Parker, H., see C. Hudson.*  
 Parker, H., 301, 2679.  
 Parker, J., 312, 2729.  
*Parker, L., see J. Partington.*  
*Parker, R., see Sellik.*  
 Parker, R., 1330.  
 Parker, T., 1309.  
 Parker, T., and A. Robinson, 1309.  
 Parkert, O., 2589, 2690, 2756.  
*Parkes, see C. Cross.*  
 Parkes, 1324, 2662, 2667.  
 Parkes and Pearson, 675, 688, 689.  
 Parkes, A., 105, 2032, 2382, 2510, 2573, 2600, 2658, 2660, 2661, 2686, 2713, 2718, 2798, 2827, 2885.  
*Parkes, H., see R. Pearson.*  
 Parkes, H., 1626, 2577, 2618, 2658, 2661, 2672.  
*Parkin, W., see A. Hoffman.*  
*Parkin, W., see A. Williams.*  
 Parkin, W., 1779, 1786.  
 Parkin, W., and A. Williams, 1779, 1786, 2753.  
 Parkin, W., and W. Williams, 3008.  
 Parkin, W., A. Williams and T. Casson, 1779.  
 Parks, 516.  
 Parks, A., 451.  
*Parks, D., see J. Mitchell.*  
*Parks, H., see R. Pearson.*  
 Parkyns, T., 2864.  
 Parlatore, F., 494.  
 Parmentier, K., and A. Hurion, 675.  
 Parna, E., 2611.  
 Parnacott, E., 2611.  
 Parnas, J., 2421, 2467.  
*Parnell, E., see J. Simpson.*  
 Parnell, E., 956, 1060.  
 Parnell, E., and J. Simpson, 1017, 1030, 1060, 1303.  
 Parodi, A., 2896.  
 Parodi, L., 1020.  
*Parodi-Delfino, B., see D. Chiara-viglio.*  
 Parodi-Delfino, B., 1108, 1203.  
 Parow, E., 477.  
 Parow, E., Ellrodt and F. Neumann, 477.  
 Parozzone Co., and H. Gardiner, 959.  
*Parozzani, see Bravetta.*  
 Parozzani, 1693.  
 Parr, 2812.  
*Parr, E., see C. Sahlström.*  
 Parr, S., 1056, 1358.  
 Parr, T., 2555.  
 Parrish, E., 1588.  
 Parrish, P., 675, 796, 1340.  
 Parrow, E., Ellrodt and F. Neumann, 441.  
*Parry, see Ryley.*  
 Parry, E., 2516.  
 Parry, J., 675, 2535.  
 Parson, 2835.

- Parson, C., 675.  
*Parsons, C., see L. Jones.*  
 Parsons, C., 899, 918, 941, 2998.  
 Parsons, C., and L. Jones, 942.  
 Parsons, C., and M. Stewart, 1335.  
*Parsons, J., see B. Davisson.*  
 • Parsons, J., 2707, 2891.  
 Parsons, R., H. Jenkins and C. I. Syndicate, 946.  
 Parsons, W., F. Wright and W. Callaghan, 2707.  
*Partington, see Kellnew\*Partington.*  
 Partington, E., 312.  
*Partington, J., see H. Adams.*  
*Partington, J., see H. Goold-Adams.*  
 Partington, J., 675, 894, 899, 1030, 1102, 1106, 1114, 1115, 1125, 1136, 1231, 1286, 1375.  
 Partington, J., and L. Parker, 751, 1088, 1242, 1267.  
 Partington, J., and E. Rideal, 899, 1005.  
 Partington, J. R., 1007.  
 Partridge, 2748.  
 Party, J., 2565.  
 Parvesi, C., 2791.  
 Parzer-Mühlbacher, A., 2857.  
*Pascal, P., see J. D'Ans.*  
 Pascal, P., 1410, 2424.  
 Pascal, P., and E. Decarriere, 899, 1006.  
 Pascal, P., and Garnier, 1518.  
 Pascalis, 2812.  
 Paschal, D., 911.  
 Paschal, P., 2436, 2464.  
*Paschen, F., see C. Runge.*  
 Paschke, F., 664, 3052, 3062.  
 Paschke, F., and The Safety Celluloid Co., 3010.  
 Paschke, H., 2689.  
 Paschutin, V., 418.  
*Pasque, G., see A. Hulin.*  
 Pasques, C., 1295.  
*Pasquier, see A. Du Pasquier.*  
 Passavant, 2864.  
*Passavant, S., see H. Reichenbach.*  
 Passburg, E., 453, 2154, 2155.  
 Passmore, 798.  
 Passmore, W., and R. Gilroy, 2762.  
 Pasteur, I., 340, 2447, 2993.  
*Pastrone, see Itala-Film Ing. Sciamengo & Pastrone.*  
 • *Pastrone, see Sciamengo.*  
 Patart, M., 2969.  
*Patat, A., et Cie, see Societe A. Patat et Cie.*  
 Patat, A., et Cie, 2582, 2894.  
 Patch, F., 312. •  
 Patent Leather Co., 2620.  
 Patent Oxonite Co., and R. Punshon, 2980.  
 Paterno and Traetta-Mosca, 2969.  
 Paterno, E., 2433, 2441, 2508, 2510.  
 Paterno, E., and A. Mazzuchelli, 1035.  
 • Paterno, E., and A. Mielli, 2444.  
 Paterno, E., and R. Nasini, 1017.  
 Paterno, E., and Traetta-Mosca, F., 2255.  
 Paterson, 2825.  
 Paterson, C., 2495.  
 • *Paterson, E., see E. Hermile.*  
*Paterson, J., see A. de Vains.*  
 Paterson, J., 2746.  
 Paterson, J., W. Dickson, and G. Kerr, 2908.  
 Paterson, J., and A. Oke, 959.  
 Pathe Freres, 3034.  
 Patillo and Colbourn, 2411.  
 Paton, J., 2726.  
 Patrick, 32, 2812.  
 Patronenfabrik, 2011.  
 Patronenfabrik, and A. Voigt, 2012.  
 Patronenfabrik Saxonia, 1951.  
 Patronilleau, G., 922.  
 Patten, 2782.  
 Patten, H., 675, 953, 2409.  
 Patten, J., 1381, 1391, 1392.  
 Patterson, 2980.  
 Patterson and Cheney, 1173.  
 • *Patterson, A., see W. Noyes.*  
 Patterson, G., 1461, 2305, 2344, 2353, 2366.  
 Patterson, G., and L. Cheney, 1171, 1192. •  
*Patterson, H., see J. Collie.*  
 Patterson, J., 2724.  
 Patterson, T., 2406, 2435, 2443.  
 Patterson, T., and A. Davidson, 2536.  
 Patterson, T., and F. Taylor, 2538.  
 Pattinson, 1324.  
 Pattinson, H., 1011.  
*Pattinson, S., see J. Carrick.*  
 Patty, J., 2565, 2567.  
 Paul, 2823.  
*Paul, A., see J. Mgrsden.*  
 Paul, A., 2569, 2570.  
*Paul, G., see R. MacIvor.*  
 Paul, J., 2658.  
 Paul, L., 2652.  
*Paul, R., see E. Backmann.*  
*Paul, R., see R. Kremann.*  
 Paul, S., 1300.  
 Paul, W., 2901.  
 Paulet, P., 2444.  
 Pauleting, M., 468.  
 Pauli, H., 736.  
*Pauling, see Birkeland.*

- Pauling, see Salpetersäure Industrie-Ges.*  
 Pauling, 852, 986, 1276.  
 Pauling, A., 701.  
*Pauling, G., see H. Pauling.*  
 Pauling, G., 693.  
 Pauling, H., 730, 844, 848, 884, 885, 886, 887, 889, 890, 892, 986, 990, 993, 1003, 1005, 1006A, 1232, 1273, 1442.  
 Pauling, H. and G., and Salpetersäure Industrie Gesellschaft, 881.  
*Paull, see Tromblee.*  
 Pauls, A., 2697.  
 Paulsen, W., 460.  
 Pauly, 75, 85.  
 Pauly, A., 61.  
 Pauly, H., 71, 664, 2624, 2775.  
 Paur, F., 1017.  
*Pauthonier, V., see L. Labbe.*  
 Pauthonier, V., 3008.  
 Pauwels, J., 2459.  
 Pavesi, C., 2787.  
 Pavlin, T., 2716.  
 Pavlitzek, R., 1280, 1281.  
 Pavloffski, V., 2915.  
 Pawlowski, B., 2430, 2440, 2496, 2503, 2504, 2505, 2506, 2507, 2508.  
 Pawlikowski, G., 2654.  
 Pawlikowski, R., 88, 693, 850, 2597, 2634, 2644, 2650.  
 Pawlow, D., 2439.  
*Paxton, S., see C. Shigley.*  
 Paxton, S., and C. Shigley, 2737.  
 Payelle, R., and E. Sidler, 1099.  
*Payen, see A. Dumas.*  
*Payen, see Gaudichaud.*  
 Payen, 195, 242, 243, 326, 389, 1583.  
 Payen and Gill, 1022.  
 Payen, A., 2, 195, 392, 408, 470, 475, 1017, 1586, 1863.  
 Payen, A., and J. Persoz, 389, 392.  
*Payet, M., see C. Lubeck.*  
 Payne, A., 2577, 2815, 2838, 2870, 2910.  
 Paynter, D., 1033.  
 Payr, H. v., 441.  
 Pazienti, U., 2411.  
 Peabody, J., 2694.  
 Peachey, 3045.  
*Peachey, S., see H. Broadhurst.*  
*Peachey, S., see W. Pope.*  
 Peachey, S., 2604, 2775.  
 Peachey and United Alkali Co., 2765, 2766.  
*Peacock, see Haslup.*  
*Peacock, D., see D. Cross.*  
*Peacock, D., see W. Rintoul.*  
 Peacock, S., 673, 849, 922, 923, 1006B, 1074.  
 Pearce, C., 2907.  
*Pearcy, A., see C. Curtis.*  
 Pearcy, A., and Curtis & Harvey, 2959.  
*Pearl, I., see F. Gallagher.*  
*Pearson, see Parkes.*  
 Pearson, 227.  
 Pearson, E., and C. Jones, 2900.  
 Pearson, H., 2582, 2702.  
 Pearson, H., and Pearson's Patents, Ltd., 2613.  
 Pearson's Patents, Ltd., 2583.  
*Pearson's Patents, Ltd., see H. Pearson.*  
 Pearson, R., 301, 847.  
 Pearson, R., and H. Parkes, 695, 709, 847.  
 Pearson, R., and J. Stoneham, 301.  
 Pearson, W., 2787, 2789.  
 Pearsons, J., 227.  
 Pease, 675, 687, 938.  
 Pease, E., 899.  
 Peastrak, 3036.  
 Pebenstorff, H., 1757.  
 Pechard, R., 1060.  
 Peche, K., 449, 2424.  
 Peck, C., and F. Engelhardt, 2718.  
 Peck, J., 2743, 2795, 3060.  
 Peck, L., 1622.  
*Peck, O., see F. Greening.*  
*Peck, W., see R. Knight.*  
*Peck, W., see T. Stoak.*  
 Peclet, 1240.  
*Pecover, P., see B. Smart.*  
*Pedersen, H., see W. Borchers.*  
 Pederson, 197.  
 Pederson, D., 301.  
 Pedler, A., 2449, 2472.  
 Pedrix, L., 2457.  
 Peel, W., 2591.  
 Peessarer, S., 3068.  
 Pefer, 2919.  
 Peiffer, J., 2693.  
 Peifke, C., 450.  
 Pein, J., 2827, 2919.  
 Peist, C., 568.  
 Pekar, D., 1017.  
 Peklo, J., 447.  
 Pelet-Jolivet, 67.  
 Peligot, 75, 326.  
*Peligot, E., see J. Dumas.*  
 Peligot, E., 2, 714, 716, 718, 1255, 1256, 1582.  
 Peligot and Bardy, 2838.  
*Peliza, A., see A. Leni.*  
 Pellegrini, L., 3081.  
 Pellen, E., 2922.  
 Pellen, M., 2573.  
 Pellerin, A., 88, 660, 2624, 2634, 2644,

- 2650, 2896, 3061, 3071, 3073.  
 Pellet, 390, 1524.  
 Pellet, A., 2600.  
 Pellet, H., *see* P. Champion.  
 Pellet, H., 409, 1621, 2314, 2319.  
 Pellet and Liebschutz, 389.  
 Pelletan, G., 2469.  
 Pelletan, P., 1010.  
 Pellier, 1851.  
 Pellieux, J., and A. Maze-Launay, 721.  
 Pellnitz, O., 2568.  
 Pelloggio, P., *see* T. Brignatelli.  
 Pelncar, G., W. Cummings and W. Meggeson, 2671, 2484.  
 Pelouze, 195, 738, 1574, 1575, 1578, 1579, 1585, 1641, 1646.  
 Pelouze, E., *see* M. Adouin.  
 Pelouze, J., *see* J. Liebig.  
 Pelouze, J., 2, 675, 714, 1017, 1060, 1261, 1347, 1569, 1570, 1572, 1583, 1817, 2511, 2802.  
 Pelouze, J., and Maurey, 1398, 1607, 1647, 2801. •  
 Pellerie, *see* Esnault-Pellerie.  
 Pemberton, H., 1247.  
 Penard, W., 2581.  
 Peniakoff, D., 1086, 1099, 1295, 1300.  
 Penito, *see* Blanchere.  
 Penkala, L., 2762.  
 Penney, S., 2659. •  
 Penniman, R., 1360, 1391, 2891.  
 Penniman, R., and J. Schrader, 1634.  
 Penniman, W., and W. Randall, 2511.  
 Pennsylvania Manufacturing Co., 1027.  
 Penny, 675, 2832.  
 Penny, G., 2903.  
 Penrose, 2872.  
 Penrose & Co., 2838.  
 Pentecost, S., *see* S. Trolman.  
 Pentecost, S., 341, 2637.  
 Penzance, J., 1076.  
 Pepper, E., 2814.  
 Pepper, N., 2903.  
 Peratoner, A., and A. Tamburello, 44.  
 Percy, 1600.  
 Percy, A., and Curtis & Harvey, 2958.  
 Percy, R., 2400.  
 Perdrizet, P., 2589.  
 Peregrin, J., 1003, 1050, 1242, 1336, 1338.  
 Pereira, F., 2861, 2867.  
 Pereire, G., 455.  
 Pereire, G., and G. Guignard, 2416, 2461. •  
 Perelzveich, V., and G. Rosenbusch, 2419, 2598.  
 Pereulok, G., 1091. •  
 Perier, M., 2712.  
 Perigord de Sagan, *see* W. MacCarty.  
 Perini, V. de, 301.  
 Perino, J., 948.  
 Perkiewicz, M., 2775.  
 Perkin, *see* Green.  
 Perkin, A., *see* A. Green.  
 Perkin, A., 495.  
 Perkin, F., and L. Pratt, 2436.  
 Perkin, W., *see* J. Bredt.  
 Perkin, W., 2386, 2398, 2430, 2453, 2498, 2499, 2504, 2568. •  
 Perkin, W., and F. Matthews, 2445, 2485.  
 Perkin, W., F. Matthews and E. Strange, 2485.  
 Perkin, W., and J. Thorpe, 2522.  
 Perkin, W., and C. Weizmann, 2469.  
 Perkin, W., C. Weizmann, and H. Davies, 2467.  
 Perkin, W., C. Weizmann, F. Matthews and E. Strange, 2467, 2485.  
 Perkin, W., and A. Williams, 2406.  
 Perkins, 523.  
 Perkins, C., 430.  
 Perkins, D., 2712.  
 Perkins, E., 453, 869.  
 Perkins, F., 446, 857, 2737.  
 Perkins, J., *see* I. Hyatt.  
 Perkins, W., *see* R. Furness.  
 Perkins, W., 2491, 2503, 2516.  
 Perks, W., *see* C. Harrison.  
 Perl, A., *see* E. Knecht.  
 Perl, A., and P. Spence & Sons, 2645.  
 Perl, J., 2492, 2585, 2693.  
 Perl, J., and P. Heermann, 2585.  
 Perley, G., 1006.  
 Perman, H., 675, 899, 945, 1060, 1101.  
 Perman, W., 675.  
 Permetter, 168.  
 Perntner, J., *see* E. Lecher.  
 Perot, A., 2714.  
 Perperot, H., 2537.  
 Perret, A., 789.  
 Perret, C., 2512.  
 Perret, F., 2597.  
 Perret, H., *see* L. Labbe.  
 Perret, M., 1078.  
 Perret, O., 1077.  
 Perrier, G., 2522.  
 Perrier, G., and I. Pouget, 2443.  
 Perrier, O., 2415.  
 Perrin, 2787.  
 Perrin, F., *see* P. Vialleix.  
 Perrin, F., 1392.  
 Perrin, J., 402.  
 Perrin, J., and J. Saunders, 1392.  
 Perrisat, A., 1306.  
 Perrot, 2592, 2838.  
 Perrot, J., *see* P. Contant.

- Perrott, A., 675, 2428, 2447, 2471.  
 Perrott de Chaumeux, 2809, 2855.  
 Perrott, G., and A. Plumb, 3049.  
 Perry, E., 2888.  
 Perry, E., Jr., 2751.  
 Perry, F., *see* E. Howl.  
 Perry, F., 1295.  
 Perry, G., *see* E. Cheney.  
 Perry, R., 1023, 1024.  
 Perry, W., 2411.  
 Petsch, P., 2555.  
 Persichetti, S., 301.  
 Person, C., 1017, 2471.  
 Personne, J., 408.  
 Persoz, *see* Biot.  
 Persoz, *see* Payen.  
 Persoz, G., 65, 101, 112, 161, 2574.  
 Persoz, J., *see* J. Biot.  
 Persoz, J., *see* A. Payen.  
 Persoz, J., 301, 475, 1011, 1223, 1629.  
 Pertsch, G., *see* H. Helbing.  
 Perutz, 2891.  
 Pervilhac, G., *see* M. Ralignier.  
 Pervilhac, H., *see* M. Ralignier.  
 Pervilhac & Co., 2634.  
 Pervilhac et Cie, *see* M. Ralignier.  
 Pervilhac et Cie, II., *see also* M. Ralignier.  
 Peschard, 1592.  
 Peschard and Mestrallet, 2669.  
 Peski, A. v., 3001.  
 Pelavel, J., *see* C. Lees.  
 Petavel, J., 2953.  
 Peter, A., 2721, 2775.  
 Peter, H., 2721.  
 Peter, J., 2857.  
 Peterkin, J., *see* H. Dixon.  
 Petermann, A., 389.  
 Peters, C., and S. Moody, 1293.  
 Peters, G., 1817.  
 Peters, G., and M. Lindsley, 2054.  
 Peters, G., M. Lindsley and King Powder Co., 2946.  
 Peters, H., 2582, 2648, 2707, 3046, 3056, 3057.  
 Peters, H., and H. Cullum, 3006.  
 Peters, J., 1023.  
 Peters, R., 2483.  
 Peters, T., *see* J. Ferriter.  
 Peters, W., 2471.  
 Petersen, 2782.  
 Petersen and Schoedler, 242.  
 Petersen, C., 2818.  
 Petersen, E., 1017, 1060.  
 Petersen, G., 1042.  
 Petersen, H., *see* N. Heinz.  
 Petersen, H., 917, 1071, 1078, 1211, 1214, 1218, 1222, 1223, 1226, 1232, 1244, 1265, 1267, 1268, 1271, 1280, 1283, 1291.  
 Petersen, H., and H. Ising, 1207, 1209.  
 Petersen, J., 2416, 2461.  
 Petersen, M., 453.  
 Petersen, P., 2602.  
 Peterson, A., 850.  
 Peterson, C., 2671.  
 Peterson, H., 1261.  
 Peterson, J., *see* A. de Vains.  
 Peterson, L., 2726.  
 Peterson, R., and E. Frost, 2585, 2586.  
 Petin, N., 2605.  
 Petit, *see* Broyer.  
 Petit, *see* Le Petit.  
 Petit, 2787.  
 Petit, A., *see* P. Dulong.  
 Petit, A., 471, 1781, 1899, 2624, 2680, 2732, 2737.  
 Petit, F., 3071, 3073.  
 Petit, L., 243.  
 Petit, M., 2788.  
 Petit, P., *see* F. Broyer.  
 Petit, P., 125, 427.  
 Petit-Devaucelle, L., 1006A.  
 Petrie, 650.  
 Petrie, P., 2711.  
 Petrie, W., 1011, 1104, 1219, 1223, 1302.  
 Petriew, 1717.  
 Petrillo, A., 2397.  
 Petroczy, S. von, 3049.  
 Petry, *see* Mestrallet-Petry.  
 Petry, E., 1017.  
 Petry, F., 1632.  
 Petry, T., and O. Fallenstein, 2162, 2384, 2947.  
 Petry, T., O. Fallenstein and H. Lisch, 2946, 2972.  
 Petsch, 2809.  
 Petschler, 2921.  
 Petschler, H., 2835.  
 Petschler, H., and Mann, 2829.  
 Petschow, G., 1239.  
 Pettenkofer, 44, 348, 1642.  
 Pettenkofer, M., 195, 1583.  
 Pettenkofer, M., and W. Grove, 1573.  
 Petterson and Sonden, 675.  
 Pettibone, H., and B. von Sholly, 933.  
 Petticolin, G., 2689, 2714.  
 Pettie, W., *see* E. Lacombe-Lane.  
 Pettie, W., *see* E. Lane.  
 Pettigrew, J., *see* T. Young.  
 Pettis, G., *see* S. Hoggson.  
 Pettit, E., 2800, 2919.  
 Pettitt, C., 2751, 2903.  
 Pettitt, E., 2849, 2887.  
 Petzold, M., 231, 232, 660, 664, 3066.

- Peuchen, S., and P. Clarke, 1380.  
 Peuffailit, L., 301, 660.  
 Peuffailit, L., and Leblanc, 301.  
 Peyrusson, E., 1786, 2676, 2755.  
 Peytral, E., 2426.  
 Peyton, E., 1280.  
 Peyton, W., 2941, 2979.  
 Peyton Powder Co., 2931.  
 Pfäffe, R., and G. North, 2563.  
 Pfaff, W., 2714.  
 Pfaffinger, L., 2721.  
 Pfannenschmidt, R., 1370.  
 Pfannenschmidt, P., and R. Moss, 1390.  
 Pfanzelter, F., 2691.  
 Pfaul, C., 1072.  
 Pfaundler, and Polt, 1314.  
 Pfaundler, L., see *H. Hlasiwetz*.  
 Pfaundler, L., 395, 2487.  
 Pfeffer, 1313.  
 Pfeffer, E., see *H. Holler*.  
 Pfeffer, W., 394.  
 Pfefferkorn, E., see *L. Ludwig*.  
 Pfeifer, H., 301.  
 Pfeiffer, see *F. Goetze*.  
 Pfeiffer, see *von Henneberg*.  
 Pfeiffer and Lehman, 346.  
 Pfeiffer and Tollens, 391.  
 Pfeiffer, E., 1017, 2476.  
 Pfeiffer, G., 1038.  
 Pfeiffer, H., 2456, 2457, 2489, 2496, 2498, 2499, 2503, 2504, 2506, 2507, 2508, 2509, 2650, 2652.  
 Pfeiffer, I., and J. Fleischer, 1306.  
 Pfeiffer, O., 1042, 2422.  
 Pfeiffer, T., and E. Blanck, 1036.  
 Pfeiffer, T., and B. Tollens, 406.  
 Pfennig, R., see *H. Pischon*.  
 Pfennigsche, H., 703.  
 Pfennig, C., 2703.  
 Pfersdorff, V., 2594, 2652.  
 Pfeufer, see *Henle*.  
 Pfiel, J., 270, 301.  
 Piffard, see also *Piffard*.  
 Piffard, H., 1887.  
 Pfitzer, E., 2457.  
 Pfitzinger, W., see *A. Wernick*.  
 Pfeiderer, P., 2672.  
 Pfeumer, F., 2775.  
 Pfüger, H., 2764.  
 Pflug, K., 2960, 2983.  
 Pflug, L., 2589.  
 Pfudel, 675.  
 Pfund, A., 2589.  
 Pfyl, B., and Rasenack, 2758.  
 Pfyl, B., and F. Rasenack, 2757.  
 Phalen, W., 1010.  
 Phare, A., 2728.  
 Pharmaceutisches Institut, L. W. Gans., 2594.  
 Phelan & Collender, 2663.  
 Phelan, G., 2724.  
 Phelps and McRae, 312.  
 Phelps, E., 312.  
 Phelps, G., 2710.  
 Phelps, I., 2512.  
 Phelps, J., 2861.  
 Philip, J., 2459.  
 Philipp, C., 2530.  
 Philipp, D., 1586.  
 Philipp, G., 2679, 2767.  
 Philippe, H., see *L. Bussy*.  
 Philippe, L., 2416.  
 Philippi, B., 291.  
 Philippi, W., 312.  
 Philipps, J., H. Lebel and R. Grimoin-Sanson, 2601.  
 Philipps, J., and P. de Troussures, 2601.  
 Philips, H., see *O. Silberrad*.  
 Philips, P., 1010.  
 Phillip, J., 2433.  
 Phillippart, G., 2699, 2700.  
 Phillips, M., 1024.  
 Phillips, P., 1101, 1103, 1104.  
 Phillips, S., 301.  
 Phillips, W., 696, 700, 709, 2979.  
 Phillips, W. and J. Bulteel, 675, 693, 695, 709, 932.  
 Philpot, B., 2737.  
 Phipps, P., see *H. Dover*.  
 Phipps, 2825, 2842.  
 Phipps, E., 2839, 2844.  
 Phips, 2838, 2840.  
 Phipson, T., 2807.  
 Phocas, see *Kirmission*.  
 Phoenix Aktien Gesellschaft Gelsenkirchen, 1308.  
 Phonofilm Syndicate, 2737.  
 Photochemische Fabrik R. Risse Gesellschaft, 2863, 2919.  
 Pianko, M., 2620.  
 Pianko, S., and M. Knaster, 2606, 2620.  
 Piard, 2808, 2815, 2921.  
 Piard, P., 2826.  
 Picard, see *H. Kirkpatrick-Picard*.  
 Picard, H., see *H. Sulman*.  
 Picard, H., see *F. Teed*.  
 Vicard, H., and W. Broadbridge, 729.  
 Picardo, see *Gerard*.  
 Picaud, 2480.  
 Pichard, M., 2419.  
 Pichery, E., see *O. Laquis*.  
 Pichler, S., 2586, 2617.  
 Pick, 2412.  
 Pick, E., 2550, 2624.  
 Pick, H., 399, 1005.

- Pickard and Shaw, 675.  
 Pickard, R., 2467.  
 Pickard, R., and J. Kenyon, 2445.  
 Pickard, R., and W. Littlebury, 2524.  
 Picken, W., 2849, 2861.  
 Pickerill, F., 2835.  
 Pickering, 413, 1316.  
 Pickering, O., 2583.  
*Pickering, S., see H. Brown.*  
 Pickering, S., 411, 952, 1017, 1314, 1317, 2308, 2436, 2456.  
 Picket, R., 715.  
 Pickford, J., 2740.  
*Pickles, F., see M. Fort.*  
 Pickles, F., and R., 2993.  
*Pickles, J., see T. Pickles.*  
*Pickles, R., see F. Pickles.*  
 Pickles, T., 226, 227, 234.  
 Pickles, T., and J., 3066.  
 Pictet and Genequand, 2392.  
 Pictet and P. Genequand, 2753, 3020.  
*Pictet, A., see J. Breslauer.*  
 Pictet, A., 17, 280, 660, 2005, 3020.  
 Pictet, A., and G. Karl, 675.  
 Pictet, A., and J. Sarasin, 24, 42.  
 Pictet, G., 292.  
*Pictet, R., see Cie Industrielle, etc.*  
 Pictet, R., 312, 686, 687, 693, 695, 712, 714, 848, 853, 1004, 1060, 1075, 1092, 1108, 1317, 1334.  
 Pictet, R., and G. Brelaz, 276, 312.  
*Picquet, O., see A. Dubosc.*  
*Picton, H., see S. Linder.*  
 Picton, N., 2545.  
 Pielsticker, C., 2413.  
*Pieper, C., see E. Thorme.*  
 Pieper, C., 2246, 2503, 2943.  
 Piequet, O., 2518.  
 Piequet, O., and P., 2004.  
*Piequet, P., see O. Piequet.*  
 Pier and A. Würrth, 2617.  
 Pier, J., 2861.  
*Pier, M., see Nobel's Explosives Co.*  
 Pier, M., 939.  
 Pierce, E., 1326.  
*Pierce, H., see E. Anderson.*  
 Pierce, H., 2993.  
 Pierce, J., 537.  
 Pierce, S., 2701.  
 Pierce, W., 2947, 2963.  
*Pierman, A., see W. Miller.*  
 Pierman, A., 2878, 2879.  
 Pierona, A., 2985.  
 Pieroni, A., 2961.  
*Pierozek, S., see T. Chrzaszca.*  
 Pierre, I., 2446.  
 Pierre, I., and E. Puchot, 2428, 2472.  
*Pierre, J., see E. Puchot.*  
 Pierre, J., 1060.  
 Pierre, J., and E. Puchot, 2439, 2449, 2499, 2504, 2505, 2508.  
 Pierren, L., 1210.  
*Pierron, L., see E. Raynaud.*  
 Pierron, L., 1078, 1211.  
 Pierron, P., 1060.  
 Pierson, P., 2393, 2896.  
 Pierson, W., 2662, 2982.  
 Piesbergen, R., 2606.  
 Piest, C., 28, 286, 536, 581, 604, 613, 615, 1674, 1677, 1732, 1733, 1734, 1909, 2071, 2301, 2400, 2570.  
 Piest, E., 559.  
*Piestrack, C., see B. Gaisenband.*  
 Pietteurs, de, 1625, 1855.  
 Pietzner, 2920.  
 Pietzner, C., 2859, 2863.  
 Pietzsch, A., 1293.  
 Pietzsch, A. and G. Adolph, 1293.  
 Pifer, G., 2615, 2687, 2848, 2850, 2910, 2911, 2918.  
*Piffard, see also Piffard.*  
 Piffard, H., 1636, 2905, 2969.  
 Pighills, J., 2586.  
 Pigott, G., 2577.  
 Pigott, V., P. Billinghamurst, and C. Stevensen, 1024.  
 Pike, 2914.  
 Pike, A., and W. Thew, 1825.  
 Pike, J., 2867, 2891, 2903.  
 Pike, W., 2730.  
 Pikos, P., 2407.  
 Pile, 1634.  
 Pilkington, W., 959.  
 Pillion, L., 1787, 2672.  
 Piloty, O., and B. Schwerin, 675, 718.  
 Pilter, T., 1060.  
 Pilz, E., 2612.  
 Pilz, F., 1006.  
*Pimentel, see E. Bloch-Pimentel.*  
 Pin, E., 2921.  
*Pinard-Martineau, see H. de Chaume.*  
 Pine, L., 2803.  
*Pinel, A., see Pinel Freres.*  
 Pinel, A., 447, 2650.  
 Pinel, A. and H., 225.  
*Pinel, H., see A. Pinel.*  
 Pinel Freres and A. Pinel, 3069.  
*Pinella, see Grote & Pinella.*  
 Pinetta, J., 2413.  
 Ping, H., and F. Schubert, 2334.  
*Pingris, M., see E. Gazagne.*  
 Pink, L., 78, 2583, 2610, 2655, 2689, 2693.  
 Pinkus, A., 675, 695.  
*Pinner, A., see G. Krämer.*  
 Pinner, A., and F. Klein, 1101.  
*Pinnow, J., see L. Wolfrum.*  
 Pintsch, J., Aktien-Gesellschaft,

- 1063, 1122, 2646, 2650.  
Pintsch, J., H. Strache, and H. Hiller, 1290, 1296.  
*Pintza, A., see P. Guye.*  
*Pintza, A., see A. Jacqueroed.*  
Piobert, 1570, 1585, 1622.  
Piobert and Morin, 1585.  
Piogey, R., 2720, 2764.  
Piogey, R., and G. Tatham, 2721.  
Pioton, A., and P. Colas-pillos, 2617.  
Piper, C., 2862.  
*Pipereaut, P., see G. Musterweil.*  
*Pipereaut, P., see O. Battaille.*  
Pipereaut, P., and Helbronner, 1389.  
Pipitz, 1878.  
Pipitz, H., 1811, 2945, 2946.  
*Piquet, see Pochez.*  
*Piquet, O., see A. Dubosc.*  
Piquet, O., 2519.  
Pire, A., 2563, 2564.  
Piria, R., 1101, 1104.  
Piriore, G., and G. Guignard, 2397.  
Piron-Raulin, L., 2901.  
Pirz, A., and M., 2993.  
Pisani, F., 413.  
Pisati, G., 1017.  
Pischel, K., 2789.  
Pischon, H., and R. Pfennig, 1391.  
Pissarshewski, L., and P. Trachoniotowski, 2409.  
Pissier, 292.  
Pissis, 726.  
*Pistschimuka, P., see F. Ehrlich.*  
Pitchford, W., 2451, 2452, 2474.  
Pitfield, R., 2785.  
Pitman, A., 2706, 2726.  
Pitman, C., 2729.  
*Pitman, E., see E. Higgins.*  
Pitman, J., 972, 1414.  
*Pitman, R., see C. Dobbs.*  
Pitman, T., 2308.  
Pitsch, M., 2711.  
Pitt, S., 301.  
Pitteurs, de, 2803, 2825, 2840.  
Pitteurs, M. de, 2838.  
Pittius, C., van, 1927, 2960, 2967, 3060.  
Pittman, T., 2592.  
Piutti, A., 243, 262, 2464.  
Pizarro, 486.  
*Pizzighelli, see J. Eder.*  
Pizzighelli, 2855.  
Pizzighelli, G., 2749.  
*Plaats, see Van der Plaats.*  
Plaats, J., van der, 1019.  
Place, J., 687.  
*Placet, A., see M. Nicloux.*  
Placet, P., 2911.  
Placzek, T., 2867.  
Pladet, E., 2568.  
Plagemann, 726.  
Plagemann, A., 725.  
Plaissetty, 2503.  
Plaissetty, A., 2594, 2626, 2645, 2893, 3059.  
Plaissetty, R., 1789.  
Plamer, H., 2826.  
*Planchon, see Societe des Cellulose Planchon.*  
Planchon, F., 391, 2645, 3076.  
Planchon, V., 2311, 2313, 2624, 2635, 2891, 2899.  
Planck, M., 2440.  
Planitz, G., v., 1870.  
Plasch, F., 2174.  
Plate, F., 2658.  
Plater-Syberg, H., 2993.  
Plath, G., 996, 1239, 1390.  
Plath, G., and Deutsche Ton und Steinzeugwerke, 1276.  
*Platon, E., see F. Haber.*  
Platon, E., 1006.  
Platsch, M., 312, 660, 664, 704, 1087.  
Platsch, M., and Hoesch & Co., 312.  
*Platt, see Mather.*  
Platt Brothers, 586.  
Platten, F., 1056.  
Plattner, 1082, 1104.  
Plauchud, E., 1022.  
*Plauson, H., see G. Tischenko.*  
Playfair, D., 1090.  
*Playfair, L., see R. Bunsen.*  
Playfair, L., and J. Wanklyn, 718, 720.  
Plehn, B., 2418.  
Pleischl, 1017.  
Pleischl, A., 710.  
Pleissner, V., 2522.  
Plener, J., 2751, 2838, 2844, 2869.  
Pless, F., 1572.  
*Plessy, see E. Matthew-Plessy.*  
Plessy, M., and I. Schlumberger, 2403, 2787.  
Pletts, J., 2737.  
Pletts, J., and E. Lauste, 2736.  
*Pleus, B., see F. Lenze.*  
Pleus, B., 2362.  
Plews, A., 2603.  
Plimpton, R., 2453.  
Plinatus, 3007.  
Plinatus, W., 2392, 2512, 2537, 2582, 2648, 2719, 2764, 3045, 3060.  
Pliny, 485.  
*Plischke, K., see G. Keil.*  
Plisson, 812.  
Plisson, A., 2742, 3076.  
Plisson, D., 838.  
Plohn, 2904.



- Plosz, P., and E. Tiegel, 418.  
 Plotsky, A., 3013.  
 Plowman, A., 2780, 2781, 2784.  
 Plucker, 2838, 2847.  
 Plucker, J., 705.  
*Rhodermann, W., see I. Wöhler.*  
 Plücker, 2836.  
 Plücker, R., 870.  
 Plücker, J., and S. Hittorf, 675, 1017.  
 Plücker, W., 2418.  
*Plüdemann, W., see L. Wöhler.*  
 Plüss, G., 2615, 2896, 2919.  
*Plumb, A., see G. Perrott.*  
 Plumbridge, D., 2555.  
 Pluvinae, C., 1006B.  
 Plymley, P., 2903.  
 "P. N.," 2923, 2985.  
 Pochez and Piquet, 1631, 1872, 1877.  
 Podevyn, 2787, 2788.  
 Podszus, E., 922, 923, 2577.  
*Poehlman, H., see E. Steele.*  
*Pöhl, see Pfaundler.*  
 Poetsch, W., 1415, 1456.  
 Poggiale, 3.  
 Pogorshelski, Z., 2536.  
 Pohl, 413, 1362, 1630.  
 Pohl, A., 1233, 1363, 1366, 1386.  
 Pohl, A., and The Deutsche Ton und  
 Steinzeugwerke, 1423.  
 Pohl, E., 1230, 2485, 2638, 2794.  
 Pohl, J., 408, 1017, 2411.  
*Pohl, W., see M. Bodenstein.*  
*Pohl, W., see G. Böldander.*  
 Pohle, 1440.  
 Pohles, 763.  
 Poilly, de, 2825.  
 Poincare, L., 2411.  
 Poirin, J., 2838.  
 Poiron, G., 2844.  
*Poiseuille, see Ostwald-Poiseuille.*  
 Poiseuille, 2282.  
 Poitevin, 1592, 2831.  
 Poitevin, A., 2835.  
 Poitevin, M., 2826, 2864.  
 Poizat, J., 2634.  
*Pokorny, E., see F. Russ.*  
 Pokorsky-Joravko, M., 2850.  
 Pokrowski, 2781.  
 Polacci, E. and G. 931.  
*Polacci, G., see E. Polacci.*  
 Polakowsky, H., 725.  
*Polansky, E., see A. Doroszewsky.*  
 Poleck, T., and I. Samelson, 2440.  
 Polenske, E., 2480, 2496.  
 Poley, 1235.  
*Polianski, E., see A. Doroszewski.*  
 Polinski, M., 2411.  
 Politzer, A., 2485, 2555, 2562.  
 Pollacci, C., 1017.  
 Pollack, 2817.  
 Pollacsek, E., 292, 312.  
 Pollak, A., 2604.  
 Pollak, E., 2604.  
*Pollak, F., see T. Eck.*  
 Pollak, F., 2775.  
*Pollak, J., see H. Seidel.*  
*Pollak, M., see R. Linkmeyer.*  
 Pollak, M., and J. Dekoster, 1789,  
 2562.  
 Pollet, A., 2568.  
 Pollitt, 2820.  
*Pollitt, G., see G. Lunge.*  
 Pollitt, J., 2835, 2903.  
 Pollitz, 442.  
 Pollock, J., 2593.  
 Pollock, M., 2703, 2743.  
 Polony, C., 1300.  
 Polotsky, A., 3019.  
 Polowzow, V., 2490, 2491, 2999.  
 Polson, J., and J. Harley, 456.  
 Polysius, G., 1071, 1074, 1310.  
 Polzenius, 926.  
 Polzeniusz, F., 919, 1005.  
 Pomeranz, H., 662, 1017.  
 Pomeranz, M., 660.  
*Pomeroy, J., see E. Potter.*  
 Pommereau, A., 1011.  
 Pommier, P., 2578, 2683.  
 Poncet, L., 2985.  
 Ponchon, M., 2555.  
 Poncio, G., 2443.  
 Pond, F., 2526, 2534.  
*Pond, G., see V. Meyer.*  
*Ponnaz, C., see F. Haber.*  
 Pont, B., 2799, 2827, 2911, 2919.  
*Pont, de, see Pontile, Ltd.*  
 Pont, A., de, 2575, 2718, 2719.  
 Pont, A., and S. de, 2612, 2660, 2688,  
 2719, 2724, 2726.  
 Pont, A., and S. de, and H. and I.  
 Storey, 2718, 2719.  
*Pont, S. de, see A. de Pont.*  
*Pont, S. de, see Pontile, Ltd.*  
 Pont, du, 965, 972, 973, 1418, 1419,  
 1428, 1508, 2248, 2257, 2371, 2940.  
 Pont, du, Fibersilk Co., 2651.  
 Pont, A. du, and J. Thompson, 2001.  
*Pont, E. du, see F. du Pont.*  
 Pont, E. du, 1635.  
 Pont, F. du, 694, 695, 699, 700, 701,  
 1417, 1427, 2063, 2078, 2132, 2156,  
 2157, 2247, 2554, 2559, 2941, 2956.  
 Pont, F. du, E. du Pont, and Ball  
 Grain Explosives Co., 2944.  
 Pont, F. du, and F. Sparre, 1711.  
 Pont, G., du, 2445.  
 Pont, J., du, 3026.  
*Pont, P., du, see F. du Pont.*

- Pont de Nemours Powder Co., E. I. du, see H. Hibbert.*  
*Pont de Nemours Powder Co., E. I. du, see W. Weedon.*  
 Pont de Nemours Co., E. I. du, 591, 599, 601, 603, 605, 607, 609, 631, 669, 724, 746, 837, 843, 987, 1783, 1814, 1817, 1994, 1998, 2000, 2001, 2072, 2073, 2249, 2390, 2423, 2468, 2485, 2488, 2501, 2553, 2584, 2607, 2609, 2667, 2694, 2779, 2931, 2932, 2942, 2957, 2966, 2995, 3023, 3048.  
*Pont de Nemours Co., E. I. du, see also E. I. du Pont de Nemours Powder Co.*  
 Pont de Nemours Powder Co., E. I. du, 753, 848, 1006B, 2134, 2445, 2467, 2504, 2513, 2582, 2583, 2675, 2770, 2977.  
*Pont de Nemours Powder Co., E. I. du, see also E. I. du Pont de Nemours Co.*  
 Pontanier, H., and M. Moderne, 2716.  
 Pontasy, P., 2618.  
 Ponteaux & Wolff, 2700.  
 Pontifex, E., 2400.  
*Pontifex, H., & Sons, see F. Early.*  
 Ponting, T., 2807.  
 Pontite, Ltd., and S. de Pont, 2576, 2701.  
 Ponzio, G., and O. Prandi, 2495.  
*Pool, F., see J. Hyatt.*  
 Pool, F., 1413, 1421, 1517, 2039.  
 Poole, 292.  
 Poole, D., 2923.  
*Poole, J., see H. Baker.*  
 Pooley, H., and G. Scott & Son, 2555.  
 Poore, 301.  
 Poore and Sulman, 2996, 2997.  
 Poore, P., 2410.  
 Pooth, P., 2592, 2880.  
 Pope and Mills, 2874.  
 Pope, A., 2612, 2679, 2687, 2698, 2699.  
 Pope, C., 453, 478.  
 Pope, F., 2569.  
*Pope, W., see J. Hübner.*  
*Pope, W., see F. Kipping.*  
*Pope, W., see W. Mather.*  
 Pope, W., and S. Peachey, 1017.  
 Popendieck, W., 2714, 2715.  
 Popoff, A., 2449.  
 Popoff, L., 348, 1017.  
 Popp, O., 1619.  
*Poppenberg, O., see A. Wohl.*  
 Poppenberg, O., and E. Stephan, 1798, 2309, 2315.  
 Popper, 2480.  
 Por, A., 1328.  
*Porai-Kochitz, A., see H. Rupe.*  
 Porat, E., 1094.  
 Porrett, R., 1642.  
 Porrett, R., and E. Teschemacher, 1583, 1646.  
 Porsch, O., 2398.  
*Porschnew, G., see G. Lunge.*  
 Portass, Portass, and Portass, 2921.  
 Porter, A., 751, 1191, 1318, 1352, 1770.  
 Porter, C., 2726.  
 Porter, D., 660.  
 Porter, H., 675, 1211, 1240, 1250, 2700.  
 Porter, J., 3, 161, 172, 1108, 1413.  
 Porter, M., 269, 2762.  
 Porter, T., 1017, 1034.  
 Porter, W., 1114.  
 Portman, M., 2891.  
 Portolac Holzmasse Gesellschaft, 2764.  
 Posnansky, A. de, 208, 2421.  
 Posnansky, A. de, and L. Spassky, 208, 664, 2321.  
 Posnjak, E., and H. Merwin, 935.  
 Posno, V., 2560.  
 Possanner, v., 301.  
 Possanner, W. v., 3079.  
 Posse, C., 3081.  
 Posson, F., 2563.  
 Post, I., 2707.  
 Poste, E., 747.  
 Potchy, 1785.  
 Pothier, E., 2986.  
 Potiez, A., 2590.  
 Potilitzin, A., 413.  
 Poto, M., 2608.  
 Pott, E., 460.  
*Potter, see Damard Lacquer Co.*  
 Potter, 2809.  
 Potter, E., 2575, 2867, 2919.  
 Potter, E., and J. Pomeroy, 1598, 2980.  
 Potter, H., and Damard Lacquer Co., 2775, 2776.  
 Potter, J., 2587, 2588.  
 Potter, M., 242, 243.  
 Pottevin, H., 470, 2461.  
 Potts, G., 1788.  
*Potts, T., see F. Greening.*  
 Potut, J., 1229, 1230, 1283.  
 Poudrerie Nationale d'Angouleme, 619, 865, 866, 1965.  
*Pouget, I., see G. Perrier.*  
 Pough, F., 1023.  
 Pougnet, J., 2517.  
 Pouillet, 516.

- Poulenc, see Soc. Anon. Etablissements, etc.*  
 Poulenc Bros., 2855.  
*Poulenc Freres, see Les etablissemments, etc.*  
 Boulenc, G., 2591.  
*Poulsen, V., see P. Freuchen.*  
 Poulson, A., and W. Mate, 570.  
 Poulson, N., 2679.  
 Poulton, F., 2598.  
 Poulverel, A., 2568.  
 Pournarede, J., and O. Figuier, 3, 126, 195, 242.  
 Pouncy, 2804.  
 Pounnier, P., 2680.  
*Pourcheiroux, M., see R. Marsat.*  
 Pouteaux, 2581.  
 Povarsky-Jaracko, 2825.  
 Povorski-Jovavko, A., 2834.  
 Povorsky-Joranko, A., de, 2834.  
 Powell, A., 2593, 2726.  
*Powell, C., see C. Fawcett.*  
 Powell, J., 2740.  
*Powell, L., see J. Wynne.*  
 Power, D., 2864.  
 Power, F., and C. Kleber, 2514.  
 Power, H., 2776.  
 Power, W., 2707, 2708.  
*Power-Gas Corporation, see Langwell.*  
 Power-Gas Corporation, Ltd., 2997.  
 Powerite Explosive Co., 1879, 2960, 2973.  
 Powers, F., 1005.  
*Powrie, see Warner-Powrie.*  
 Poynter, J., 2471.  
 Pozzati, N., 1229.  
 Pozzi, C. and A. Tandelli, 2762.  
 Pozzi-Escot, E., 2418, 2762, 2764.  
 Pozzie, C., and T. Fondelli, 2776.  
 Pozzoz, L., 3.  
*Praceiq, see E. Bouchard-Praceiq.*  
 Prade, 334.  
 Pradel, G., 197, 205.  
 Pradier, 2787.  
*Prætorius, P., see O. Ruff, 2779.*  
*Prager, see Scherfenberg.*  
 Prager, M., 2993, 2998.  
 Prager, O., 2587.  
*Prager, S., see E. Salm.*  
*Pandi, O., see G. Ponzi.*  
 Pranke, E., 724, 926.  
*Prat, L., see J. Teissel.*  
 Pratis, L., and P. Marengo, 1292.  
 Prats, J., 1310, 1330.  
 Pratsinger, E., 2588.  
 Pratt, 1385.  
 Pratt Engineering & Machine Co., 1063.  
 Pratt Process Co., 1290.  
 Pratt, G., 2659.  
 Pratt, J., 984, 1442.  
*Pratt, L., see F. Perkin.*  
 Pratt, N., 1212, 1239, 1243, 1246, 1271, 1289.  
 Pratt, S., 470.  
 Pratt, T., 227, 3066.  
 Pratt, U., 2730.  
*Prause, H., see A. Juckenack.*  
 Pray, T., 2743.  
 Preaubert, L., 2615.  
 Preble, G., 2709.  
 Precht, H., 1086, 3024.  
 Pregl, F., 390, 414.  
 Preiswerk, F., 2536.  
 Prelier & Co., 1011.  
 Prelier, P., 1011, 1130.  
*Prentice, see Wilson.*  
 Prentice & Co., 1596.  
 Prentice and G. Delplace, 1365.  
 Prentice, C., 2948.  
 Prentice, E., 811, 1618, 1754, 1886, 2945, 2963, 2980, 2985.  
 Prentice, E., and T. Richardson, 1618.  
 Prentice, M., 704, 747, 788, 846, 960, 985, 986, 993.  
*Prescay, see Fournier.*  
 Presch, W., 1914.  
 Prescott, A., 2406.  
*Prescott, C., see L. Norton.*  
 Presser, P., 704.  
 Pressloid Co., 2590.  
*Preston & Co., see Fawcett.*  
 Preston, E., 2611.  
 Preston, G., 2689.  
 Preston, R., and T. Thornley, 301.  
 Preuss, E., 476.  
*Preusse, C., see F. Tiemann.*  
*Preussner, J., see J. R. Denison.*  
 Prevault, 2787.  
 Preville, C. de, 743.  
*Prevost, E., see R. Thomas.*  
*Pribram, R., see A. Handl.*  
 Pribram, R., 8, 2431.  
 Pribram, R., and A. Handl, 1722, 2430.  
 Price, 2835.  
*Price, A., see E. Nicholson.*  
*Price, E., see P. Schmidt.*  
 Price, E., 226.  
 Price, J., 693, 729, 815, 939, 2699, 2729.  
*Price, T., see P. Frankland.*  
*Price, T., see H. Wood.*  
 Price, T., 1294, 2399.  
 Price, W., 2912.  
 Price-Edwards, F., 1631.  
*Prideaux, R., see C. Mitchell.*

- Pridham, M., 2415.  
 Priem, P., 301.  
 Priestly, 391.  
 Priestly, J., 675, 680.  
 Priestman, F., 2564.  
 Prieto, M., 725, 731.  
 Primagesi, A., 1235.  
 Prin, 1011.  
 Prince, F., 1590, 2697, 2980  
 Prince, J., 2602.  
 Pring, J., 675.  
 Pringle, A., 2914.  
 Pringsheim, E., 2437, 2440, 2487, 2508.  
 Pringsheim, H., 182, 343, 850, 2464, 2483  
 Pringsheim, H., and F. Eissler, 418.  
 Pringsheim, H., and A. Langhans, 418  
 Pringsheim, H., and H. Magnus, 55, 660.  
 Pringsheim, H., and M. v. Markatz, 343  
 Pringsheim, N., 394.  
 Prinsen-Gerlign, H., 691, 817.  
 Printer, G., 2711.  
 Prinz, A., and E. Quellmalz, 225.  
 Prinz, H., 1017, 1060.  
 Pritchard, H., 2912.  
 Pritchard, P., and The United Alkali Co., 1387.  
 Pritzkow, see R. Holkwitz.  
 Pritzkow, A., 312.  
 Probeck, E., see H. Roger.  
 Prochazka, G., 2419.  
 Proctor, 2618.  
 Proctor and Schwartz, Inc., 633, 635, 637, 639, 640, 641.  
 Proctor, H., and S. Hirst, 312.  
 Proctor, H., and J. Wilson, 32.  
 Proctor, W., 1011, 1591, 1694.  
 Prod'homme, H., 1629, 2960.  
 Proelss, A., and W. Hall, 1356.  
 Proelss, O., 1206, 1212, 1388.  
 Projahn, F. see Chem. Fabrik Rhena-nia.  
 Projahn, F., 1091.  
 Prooije, D., van, see F. Schreinemakers.  
 Prosiegel, R., see H. Ost.  
 Prost, 1207.  
 Prost, E., see J. Cavalier.  
 Prost, E., 1080.  
 Prost, P., & J. Girard, 2602, 2660.  
 Prost, P., and E. Michey, 1780, 1782, 2019.  
 Prost, P., E. Michey and P. Cocholet, 1782, 2669.  
 Proust, J., 3, 1862.  
 Proveux, H., see P. Nonges.  
 Proveux, H., 2762.  
 Provost, see Thomas.  
 Prud'homme, 160  
 Prud'homme, M., 60, 71, 75, 92, 1129, 1300, 2461.  
 Prumm, 2813  
 Prumm, T., 2835.  
 Prunier, L., 1017, 1033.  
 Prussia, L., see C. Grimaldi.  
 Prym, A., 2705, 2762.  
 Prytz, E., see O. Gallarder.  
 Prytz, E., 701.  
 Prytz, K., 2500  
 Przybytek, S., 1857.  
 Puaux, M., 3078.  
 Publishing, Advertising and Trading Syndicate, 2609, 2670, 2687, 2746.  
 Publishing and Trading Syndicate, 2616.  
 Puccianti, L., 2406.  
 Puchot, E., see I. Pierre.  
 Puchot, E., see J. Pierre  
 Puchot, E., 390, 411, 2440.  
 Pudney, S., 1205.  
 Pudor, H., 2592.  
 Puning, H., 1074  
 Puschel, A., 2676, 2680, 3013, 3044.  
 Puschner, J., 2703.  
 Pugh, C., and Rudge-Whitworth, Ltd. 2698, 2699.  
 Pughsley, W., 1299, 1309.  
 Pulber, F., 2614.  
 Pulite, J., see R. Schiff.  
 Pulver-Fabrik Hassloch, 1829.  
 Pulvermacher, I., 2669.  
 Pum, G., 2637.  
 Pum, G., and A. Glaessner, 3079.  
 Pumphrey, A., 2887.  
 Punnett, P., see H. Sherman.  
 Punshon, R., see Patent Oxonite Co.  
 Punshon, R., 1620, 2943, 2963, 2981, 2983, 2984.  
 Pupke, E., 2705.  
 Purdie, T., and W. Marshall, 2490.  
 Purgotti and Anelli, 675.  
 Puring, J., 312.  
 Pursell, A., 2739.  
 Puschel, A., 2758  
 Puscher, C., 2588.  
 Pusey, P., 725.  
 Putsche, C., 458.  
 Putz, 2983.  
 Puy, see Du Puy.  
 Pyman, F., see H. Wellcome.  
 Pyroxylin Mfg. Co., see D. Bickford.  
 Pyroxylin Manufacturing Co., see Spooner.  
 Pyroxylin Manufacturing Co., 1623.  
 Pyrtz, K., 2506.

- Quaife, W., 2728.  
 Quarby, F., 2860.  
 Quartaroli, A., 875.  
*Quartieri, F., see E. Molinari.*  
 Quartieri, F., and E. Molinari, 1786.  
 2964.  
 Quednau, R., 2858.  
*Quellmalz & Co., see Sachs-Bankges.*  
*Quellmalz, E., see A. Prinz.*  
 Queneau, A., 1080.  
 Quennessen, L., 1366.  
 Quentin, 2683.  
 Quentin, H., 2878.  
 Quesnay, 2861.  
 Quesnay, C., 2869.  
 Queval, 2845.  
 Quick, G., 2981.  
 Quijano, P., 2705.  
 Quiller, T., 1975.  
 Quin, W., 2891.  
 Quinan, 675, 1475, 1478, 2194, 2200,  
 2203, 2221, 2228.  
 Quinan, C., 2026.  
 Quinan, K., 893, 1225, 1292, 2220,  
 2290, 2926.  
 Quinan, W., 1282, 1291, 1354, 1383,  
 1391.  
 Quincke, F., 1072, 1192.  
 Quincke, G., 51, 1017, 1035.  
 Quinet, 2825.  
 Quist, W., 660, 663.  
*Qurin, see T. Schulhof.*  
 Raab, L., 457.  
*Raabe, B., see P. Roder.*  
 Raabe, P., 335.  
 Raaschou, P., 2305.  
 Raaz, A., 312.  
 Rabe, H., 1109, 1190, 1192, 1212,  
 1218, 1235, 1239, 1240, 1241, 1244,  
 1250, 1290, 1313, 1330, 1338.  
*Rabinovitz, L., see C. Ellis.*  
 Rabinovitz, L., 899.  
 Rabl, 2784.  
*Rabot, C., see J. Saetersmoen.*  
 Rabourdin, 195.  
*Rabourdin, A., see C. Jacober.*  
 Rabuteau, A., 2451, 2474, 2483.  
 Raby, L., 2571.  
 Race, J., 2463.  
 Raclet, 2699.  
 Kaczek, P., 2699.  
 Radau, R., 1623.  
 Radbruch, 1620.  
 Radcliffe, J., 3013.  
 Radcliffe, L. and S. Medofski, 3001.  
 Radikofer, L., 3.  
*Radinger, C. von, see R. Wagner.*  
 Radlberger, L., 736, 930.  
 Raducan, G., 2788.  
*Rae, W., see H. Joseph.*  
 Rae, W., and C. Symons, 2424.  
 Raethel, O., 2751, 2856.  
*Raeuber, E., see R. Buntrock.*  
 Raffo, M., 1035, 1036.  
 Raffo, M. and J. Mancini, 1034, 1036.  
 Rafn, R., 2650.  
 Rafter, H., 2911.  
 Ragg, M., 2779.  
*Ragon, V., see L. Droulers.*  
 Ragosine, V., and P. Dvorkowitsch,  
 1101, 1119.  
 Ragot, G., 337, 2624.  
 Ragsby, F., 675.  
 Ragsdale, W., 569.  
 Rahm, 460.  
 Rahtjen, A., 1203.  
 Rai, H., 688.  
 Raikow, P., 2409, 2434, 2461.  
 Railton, R., 1717, 2447.  
 Raimbaud, 2787.  
*Ruine, J., see F. Morris.*  
 Rainer, J., 2461.  
 Raison Sociale Siebert Freres, 3057.  
 Raitt, 301.  
 Raitt, W., 301.  
 Rakowski, A., 437, 438.  
*Rakowsky, A., see A. Doroschewski.*  
 Rakusin, M., 2560.  
*Raleigh, see Ramsay.*  
*Rall, H., see A. Meier.*  
*Ralph, E., see J. Reilly.*  
 Raltmanner, 2855.  
 Ram, J., 1011.  
 Ramage, A., 1292, 2522.  
 Rambaldini, G., 1075.  
*Rambaud, L., see A. Tixeir.*  
 Ramee, M. de la, 2765.  
 Ramen, A., 1310.  
 Ramen, A., and K. Beskow, 1073.  
 Raïnmeisberg, C., 716, 1060.  
 Ramon, 675.  
 Ramond, O., 2792.  
 Rampichini, F., 2400, 2582, 2618,  
 2621, 2693, 2709.  
 Ramsay, 2824.  
 Ramsay and Lewis, 3061.  
*Ramsay & Co., see McTavish.*  
*Ramsay, A., see McTavish.*  
 Ramsay, G., 2850.  
*Ramsay, W., see E. Chorley.*  
*Ramsay, W., see J. Drugman.*  
*Ramsay, W., see Mond.*  
*sayRam, W., see Rayleigh.*  
*Ramsay, W., see K. Williams.*  
 Ramsay, W., 312, 675, 699, 703, 716,  
 718, 1017, 1086, 2432, 2503.  
 Ramsay, W., and, E. Aston, 2498,

- 2499, 2503, 2504, 2506, 2507.  
 Ramsay, W., and J. Cundall, 699,  
 714, 716, 718, 1304.  
 Ramsay, W., and J. Drugman, 692.  
 Ramsay, W., and D. Marshall, 2498,  
 2499, 2503, 2506, 2507.  
 Ramsay, W., and Rayleigh, 680.  
 Ramsay, W., and J. Shields, 711, 1722,  
 2385, 2432, 2441, 2461, 2503.  
 Ramsay, W., and B. Steele, 2406.  
 Ramsay, W., and W. Travers, 675.  
 Ramsay, W., and S. Young, 675, 1017,  
 2414, 2432.  
 Ramsay, W., S. Young, J. Waterson  
 and G. Hirn, 1522, 1523.  
 Ramsbottom, 1241.  
 Ramsey, C., 301.  
 Ramus, P., 2710.  
 Rancken, E., 1017  
*Rand, see Lavin.*  
 Rand, 2787.  
*Rand, C., see H. Laveth.*  
 Rand, C., 1701.  
*Randall, C. Adams-, see C. Adams-*  
*Randall.*  
*Randall, M., see G. Lewis.*  
 Randall, M., and O. Cushman, 1318.  
*Randall, W., see W. Pennimann.*  
 Randolfi, 2787.  
 Randolph, L., 2598.  
 Randon, F., 1088.  
 Rankin, H., 699, 703, 849, 1001.  
 Ransford, H., 463.  
*Ransom, H., see F. Edwards.*  
 Ransome, 1647.  
 Ransome, T., 3, 1583, 1642, 2697.  
 Ranyard, A., 2903.  
*Rao, B., see F. Usher.*  
 Raoult, 406, 2503.  
 Raoult, F., 2386, 2439, 2440.  
 Rapeaud, N., 2604.  
 Raphael, M., 2864.  
 Rapid Magnetizing Co., 2201.  
 Rapin, O., 2788.  
*Rapp, R., see E. Buchner.*  
 Rappaport, L., 2395.  
 Rappold, R. and E. Leeth, 1360, 1361,  
 1369.  
*Rare Metals, Ltd., see Clarke.*  
 Rasche, H., 2409.  
*Raschen, J., see F. Japp.*  
 Raschen, J., C. Higgins, and The  
 United Alkali Co., 3005.  
 Raschen, J., C. Imison and United  
 Alkali Co., 1291.  
 Raschig, E., 1240.  
*Raschig, F., see G. Lunge.*  
 Raschig, F., 287, 312, 675, 696, 704,  
 710, 712, 714, 717, 719, 720, 721,  
 843, 846, 900, 904, 1051, 1055, 1060,  
 1083, 1097, 1258, 1260, 1268, 1306,  
 1335, 2547, 2762, 2979, 3028.  
 Raschig, F., W. Mueller, and K.  
 Dürkes, 1328.  
 Raschig, T., 996.  
*Rasenack, see B. Pfyl.*  
*Rasmussen, E., see J. Ammundsen.*  
*Raspail, see Leroy.*  
 Raspail, 242, 389.  
 Raspail, F., 392.  
 Rasse-Courbet, E., 1033.  
 Rasser, E., 88, 95, 662, 2652.  
 Rassi, C., 986.  
*Rassow, B., see A. Remele.*  
 Rassow, B., 114, 141.  
 Rassow, B., and W. v. Bonge, 1672.  
 Rast, O., 696.  
 Rath, F., 2477.  
 Rath, G., 1017.  
 Rath, W., 1101, 1162  
 Rathgen, F., 2583.  
 Rathgens, 3046.  
 Rathje, A., 2463.  
 Rathke, B., 1018.  
 Rathmann, R., 2698, 2776.  
 Ratignier, M., 2620, 2650.  
 Ratignier, M., and H. and G. Pervil-  
 hac, 2634.  
 Ratignier, M., and Soc. H. Pervilhac  
 & Cie., 2583, 2613, 2626, 2650,  
 2879, 2894, 2899.  
 Ratz, F., 2459.  
 Rau, G., 2905.  
 Rau, O., and G. Lambris, 42.  
 Rauch, H., 3006.  
 Raudnitz, 2577.  
 Rauh, C., 2611.  
 Rauhé, C., 2740.  
*Raulin, see Piron-Raulin.*  
*Raug, see Societe Raucq.*  
*Rausch, R., see A. Krumholz.*  
 Rausch, R., 2679.  
*Rauschenbach, see J. Mayer-Rauschen-*  
*bach.*  
 Rauschenbach, M., 229.  
 Rave, C., 2601.  
 Ravenel, St., J., 1239.  
*Raverat, G., see Societe J. Jean & Co.*  
 Ravizza, V., 2665, 2668.  
 Rawes, F., 1030.  
 Rawlings, W., 2915.  
*Rawlins, G., see R. Bradford.*  
*Rawson, see Knecht.*  
 Rawson, F., and Knight & Co., 2577.  
*Rawson, H., see A. MacDougall.*  
*Ray, B., see W. Withers.*  
 Ray, G., 2662, 2706, 2886.  
 Ray, P., M. Dey, and J. Ghosh, 704.

- Ray, W., 2742.  
 Ray, W., and J. Reilly, 2280.  
 Rayleigh, 675, 692, 693, 711, 945.  
 Rayleigh, and W. Ramsay, 675.  
 Rayman, B., *see* K. Kruis.  
 Rayman, B., and K. Kruis, 2456, 2461.  
 Rayman, J., 2503, 2504, 2505.  
 Raymond, R., 2879.  
 Raynaud, A., *see* W. Oechsner de Coqjnick.  
 Raynaud, E., 1099, 1100, 1871.  
 Raynaud, E., and L. Pierron, 1108, 1194, 1196.  
 Raynaud, F., 815.  
 Raynaud, G., 662.  
 Rayner, G., 301.  
 Rayner, H., and W. Crookes, 1086, 1300.  
 Razous, P., 2556.  
 Re, G., 2911.  
 Reach, R., and G. Staples, 2726.  
 Read, H., *see* S. Tucker.  
 Read, W., and Wardle & Davenport, 2711.  
 Reade, C., 2726.  
 Reade, E., 2741.  
 Reade, J., 3, 2810.  
 Readman, J., 934.  
 Readmann, J., and G. Gemmell, 301, 302.  
 Reagles, C., 2739.  
 Reagles, I., 2611.  
 Rearick, C., 2897.  
 Reavell, J., 1518.  
 Rebenstorff, H., 2986.  
 Rebs, H., 1101.  
 Rechenberg, C. v., 2487.  
 Reckard, H., 2909.  
 Recke, K., 1372.  
 Reckow, P., 2684, 2085.  
 Reclaire, A., 2534.  
 Reddaway, F., 2601, 2688.  
 Reddaway, F., and M. Dcsau, 2677, 2689, 2705, 2718.  
 Redfern, G., 2603.  
 Redfelsen, J., *see* A. Hafely.  
 Redlich, P., 3036.  
 Redman, L., 2721.  
 Redman, L., A. Weith, and F. Brook, 2776.  
 Redmayne, R., 301.  
 Redon de Colombier, de, 2634.  
 Redpath, L., 1490, 1495, 1497, 1498.  
 Redtenbacher, *see* Schneider.  
 Redtenbacher and Schneider, 1607.  
 Redtenbacher, Schroetter and Schneider, 1604, 1641, 1647.  
 Redwitz, O. v., 2615.  
 Redwood, *see* A. Hofmann.  
 Redwood, 2275, 2279.  
 Redwood and Boverton, 2424.  
 Ree, G., *see* J. Luetkehermölle.  
 Reed, C., 1080.  
 Reed, D., 2580, 2738, 2800.  
 Reed, H., 301, 312.  
 Reed, T., 1038.  
 Reents, W., and F. Eilfeld, 2634.  
 Rees, 1178, 1182, 1380.  
 Reese, 1619.  
 Reese, C., 1060, 1090, 1091, 1101, 1103, 1170, 1171.  
 Reeser, H., 2992, 3042.  
 Reeser, W., 2776.  
 Reeves, F., and J. Muschamp, 1617, 1618, 1878, 2030.  
 Reeves, J., 1618, 2030.  
 Regal, A., 2776.  
 Regaud, C., 2784.  
 Regnbogen, A., *see* N. Schoort.  
 Regener, E., *see* E. Warburg.  
 Regensburger, J., 1856.  
 Regmouf, de Vains, A., *See* le Normant des Varnnes.  
 Regnauld, J., and E. Hardy, 2451.  
 Regnault, 2829, 2907.  
 Regnault, J., 710.  
 Regnault, V., 714, 1018, 1060, 1317, 1318, 2448.  
 Regnaulte, 2825.  
 Rehe, 463.  
 Rehlander, P., *see* K. Stephan.  
 Rehmann, H., and A. Mirbach, 1074.  
 Reich, 1083, 1327.  
 Reich, F., 1090, 1101.  
 Reichard, 2809.  
 Reichard, C., 963.  
 Reichardt, E., 1817.  
 Reiche, von, *see* W. Meyer.  
 Reiche, F., *see* J. Weise.  
 Reichelt, O., 2619, 2620.  
 Reichen, C., 1617, 1817.  
 Reichenbach, 230.  
 Reichenbach, C., 227.  
 Reichenbach, H., *see* S. Passavant.  
 Reichenbach, H., 2577, 2889, 2899.  
 Reichenbach, H., and S. Passavant, 2899.  
 Reichenbach, M., 2918.  
 Reicher, L., 1018, 2491, 2503, 2504, 2506, 2508, 2509.  
 Reicherts, *see* L. Hermann.  
 Reichhold, Flügger & Boecking Stadlauer Lack-fabrik, 3062.  
 Reichling, R., 1073.  
 Reichmann, F., 227.  
 Reichmann, F., and C. Lagerquist, 227.

- Reid, 288.  
 Reid, D., 2394, 3069, 3075.  
 Reid, E., *see* E. Fabre.  
 Reid, E., *see* M. Pardee.  
 Reid, H., *see* J. Kelly.  
 Reid, J., 921, 935.  
 Reid, P., *see* J. Schuhmacher.  
 Reid, P., and J. Eastwood, 2919.  
 Reid, T., 301.  
 Reid, W., *see* R. Carpenter.  
 Reid, W., 676, 1584, 1632, 2250, 2606, 2609.  
 Reid, W., and E. E. Me, 2606, 2619, 2982.  
 Reid, W., and D. Johnson, 1632, 1897, 2251, 2971, 2944.  
 Reid, W., and Velvri Co., 2606.  
 Reidel, E., 2602, 2604, 2620.  
 Reidel, P., 2584, 2677.  
 Reif, G., 2410.  
 Reif, N., 2737.  
 Reighter, F., 2716.  
 Reihl, C., *see* A. Waters.  
 Reihl C., and A. Waters, 2392, 2565.  
 Reilley, A., 312.  
 Reilly, J., *see* Desborough.  
 Reilly, J., *see* W. Ray.  
 Reilly, J., X, 2424.  
 Reilly, J., W. Hickenbottom, F. Henley and A. Thaysen, 2397, 2399.  
 Reilly, J., and E. Ralph, 2399, 2445.  
 Reiman, A., 2615.  
 Reiman, R., 78.  
 Reimen, P., 1056.  
 Reimer, *see* Haarman.  
 Reimer, K., *see* A. Hofman.  
 Reinacher, *see* Ziegler-Reinacher.  
 Reinau, E., 1005, 1006.  
 Reinders, W., and A. Cats, 676, 895, 943, 1082.  
 Reindl, 1586.  
 Reinecke, A., and F. Beilstein, 2776.  
 Reinecke, R., and E. Knoll, 2767.  
 Reinfurth, E., *see* C. Newberg.  
 Reinganum, R., 2406.  
 Reinglass, P., 2400.  
 Reinhardt, *see* Kämmer.  
 Reinhardt, E., 2711, 2730.  
 Reinhardt, K., *see* G. Keppeler.  
 Reinhardt, K., *see* G. Lunge.  
 Reinhardt, O., 2602.  
 Reinhart, *see* C. Jung-Reinhart.  
 Reinherz, T., 2575.  
 Reinicke, P., 301.  
 Reiniger, E., and G. Lüdecke, 2645.  
 Reinitzer, 243.  
 Reinitzer, B., 312.  
 Reinitzer, F., 264, 399.  
 Reinke, J., 399.  
 Reinke, O., 611, 2475.  
 Reinsch, 100, 1583.  
 Reinsch, H., 3, 714, 1300, 1849, 1863, 2472.  
 Reis, J., *see* E. Knoevenagel.  
 Reis, M., 2453.  
 Reisberger, L., 2568.  
 Reise, C., 1110.  
 Reiseiger, M., *see* J. Van Deinse.  
 Reiset, J., 348.  
 Reishoff, T., 2253, 2946.  
 Reiss, 2867.  
 Reissig, *see* Reissig.  
 Reiss, R., 3, 126, 326, 2859.  
 Reissig, 1618.  
 Reithoffer, N., *see* Ver. Gummi-Waaren Fabriken, etc.  
 Reitlinger, A., 1042, 1056.  
 Reitlinger, E., and M. Kuhn, 676.  
 Reitmair, O., *see* A. Stutzer.  
 Reitstatter, J., 2992, 3042.  
 Reko, V., 2534, 2737.  
 Reliance Drying Room Co., 2585.  
 Remele, 2821.  
 Remele, A., and B. Rassow, 1006B.  
 Remfrey, F., 2465.  
 Remington, J., *see* C. Cross.  
 Remington, J., D. Bowack, and B. Dixon, 301.  
 Remington, J., D. Bowack, and P. Davidson, 301.  
 Remmer, A., *see* Egoroff.  
 Remmey, R., *see* H. Weidig.  
 Remmy, *see* Remy.  
 Remond, 2904.  
 Remsen, G., 226.  
 Remy, P., *see* Farbwerke Friedrichsfeld, P. Remy.  
 Remy, P., 292, 312.  
 Renard, J., *see* J. Lanfrey.  
 Renard, T., and P. Guye, 2490.  
 Renard, V., 2644, 2648.  
 Rendle, T., *see* A. Ling.  
 Rendle, T., and D. Scotellari, 2907.  
 Rene, *see* J. de Saint-Rene.  
 Rene, A., *see* H. Cathelineau.  
 René, J., 1878.  
 Renet, 2821.  
 Renker, M., 358, 363.  
 Rennie, E., A. Higgin, and W. Cooke, 953.  
 Renson, 727.  
 Renwick, C., *see* W. Freeland.  
 Renwick, C., *see* W. Lamoreaux.  
 Renwick, C., 1073, 1075, 1081.  
 Renyi, E., *see* P. Askenasy.  
 Requa, L., 2697.  
 Requeno, V., 725.  
 Resan-Kunstharz-Erzeugungs-Ges.,



2776.  
 Respass, R., 2602.  
 Restat, P., 725.  
 Retgers, J., 1018.  
 Retter, A., 1210.  
 Retter, S., 1248, 1249.  
 Rühl, G., 2586, 2593.  
 Reuleaux, 2719.  
 Reuler, M., 1050.  
 Reumann, E., 2969.  
 Reunert, W., 2960.  
 Reusch, K., 676, 1009, 1048, 1072, 1265.  
 Reuss, 1086.  
 Reuss, E., 2980, 2981.  
 Reuter, *see* P. Van Kerckhoff.  
 Reuter, A., 2514.  
 Reuter, F., *see* P. van Kerckhoff.  
 Reutlinger, 2809.  
 Revell, R., and T. Barnard, 2737.  
 Reverchon, L., 2627.  
 Reves, C., 2762.  
 Revis, C., and H. Burnett, 475.  
 Revy, J., 1596, 2021, 2980.  
 Rewidzoff, O., *see* E. Herzfeld.  
 Rey, 17.  
 Rey, H., *see* G. Lunge.  
 Rey, J., 1011, 2879, 2894.  
 Reyckler, A., *see* E. Fouard.  
 Reyckler, A., *see* L. Masson.  
 Reyckler, A., 431, 1060, 2458, 2514, 2522.  
 Reygondaud, 1623.  
 Reyher, R., 952.  
 Reymonds, *see* Dubois-Reymonds.  
 Reynard, J., 2737.  
 Reynaud, 2805, 2806, 2825, 2886.  
 Reynaud, E., 2807.  
 Reynaud, E., and L. Pierron, 1203.  
 Reynaud, G., *see* R. Wallace.  
 Reynolds, 2805, 2886.  
 Reynolds, A., 1011.  
 Reynolds, E., 2833.  
 Reynolds, J., 1601, 2446, 2751, 2919.  
 Reynolds, O., 1722.  
 Reynolds, W., and W. Taylor, 954, 1260, 1261.  
 Reynoso, 1302.  
 Reynoso, A., 701, 1088.  
 Rheinberg, E., *see* J. Rheinberg.  
 Rheinberg, J., and E., 2879.  
 Rheingönheim, *see* P. Babatz-Rheingönheim.  
 Rheinische Gelatine-Werke G. m. b. H., 1306.  
 Rheinische Gummi u. Celluloid Fabr., 2524, 2549, 2676, 2679, 2680, 2689, 2693, 2716, 2722, 2726, 2744, 2746.  
 Rheinische Hartgummiwaren Fabrik, 2588, 2688.  
 Rheinische Holzdestillation Ges., 2395.  
 Rheinische Kampherfabrik, 2549.  
 Rheinische Kunstseide Fabrik, *see* O. Muller.  
 Rheinische Kunstseide Fabrik, 71, 86, 88, 92, 569, 2626, 2634, 2654.  
 Rheinische Westphalische Sprengstoff A. G., 1858, 1970, 2028.  
 Rheinfels, C., 400.  
 Rheinlander, H., 2919.  
 Rhenania Works, 1077.  
 Rhenanus, 2858.  
 Rhodes, F., *see* W. King.  
 Rhodes, G., *see* J. Mackintosh.  
 Rhodes, G., and J. Syme, 2605.  
 Rhodes, R., and G. Binswanger, 958.  
 Rhodius, R., *see* O. Diels.  
 Riasse, A., *see* R. Desouches.  
 Riban, J., 2524.  
 Ribbe, P., 2597, 2658, 2699.  
 Ribbertsche Braunkohlen und Tonwerke, 1269.  
 Ribet, 2867.  
 Riboud, E., and C. Ahnert, 446, 664.  
 Ricard, E., 2397.  
 Rice, J., 151, 1229.  
 Ricevuto, A., 1320.  
 Rich, C., 253.  
 Richard, A., 2466.  
 Richard, E., 79.  
 Richard, F., 2424.  
 Richard, L., and J. Jacquin, 2626, 2650, 2652.  
 Richard, M., 2627, 2642, 2652.  
 Richard, P., 122.  
 Richards, E., *see* O. Masson.  
 Richards, F., 2704, 2725, 2835.  
 Richards, G., 2861.  
 Richards, J., *see* R. Lavender.  
 Richards, J., 924, 925.  
 Richards, T., 2434, 2461.  
 Richards, T., and H. Davis, 603, 2410.  
 Richards, T., and G. Forbes, 692.  
 Richards, T., and C. Hoover, 1034.  
 Richards, T., and J. Mathews, 2483.  
 Richards, W., 2608, 2741.  
 Richardson, 293, 2789, 2791.  
 Richardson, A., 714, 718, 721, 897, 900, 2441, 2451.  
 Richardson, A., and E. Fortey, 2458.

- Richardson, C., 2595.  
*Richardson, E., see E. Milo.*  
 Richardson, F., 676, 1335, 1508.  
 Richardson, F., and J. Bowen, 2571.  
 Richardson, F., and J. Whitaker, 2571.  
 Richardson, J., 2518.  
 Richardson, J., and A. Marr, 2613, 2614, 2711.  
 Richardson, L., 2779.  
*Richardson, T., see R. Imeary.*  
*Richardson, T., see E. Prentice.*  
 Richardson, T., 1011.  
 Richardson, W., 2694, 2730  
 Richarz, F., 676.  
 Riche, A., 466.  
 Riche, A., C. Bardy, and M. Berthelot, 2806.  
 Riche, J., 2444  
 Richemond, de, 1008.  
 Richet, 2788.  
 Richier, 1584.  
 Richmond, C., 2740.  
 Richmond, C., 301.  
 Richmond, H., 2428, 2463  
 Richmond, H., and J. Goodson, 2463.  
 Richmond, H., and J. Merreywether, 1328.  
 Richmond, H., and F. O'Shaughnessy, 2458.  
 Richmond, W., 2845, 2847.  
 Richter, 2782.  
 Richter, A., 312, 2703, 2712.  
 Richter, A., and L. Dunbar, 312, 1087.  
 Richter, C., 326.  
 Richter, E., 278, 2409, 2451, 2534.  
 Richter, F., 2705.  
*Richter, G., see H. Moore.*  
 Richter, G., and J. Wilowski, 336.  
 Richter, H., 1899, 2781.  
 Richter, J., 3042  
 Richter, M., 2561.  
*Richter, R., see H. Kunz-Krause.*  
 Richters, T., 1207, 1212.  
 Ricket, C., 418.  
*Ricketts, E., see T. Murray.*  
 Ricketts, P., and T. King, 1074.  
*Rickmann, A., see W. White.*  
*Rickmann, J., see J. Thompson.*  
 Ricordi, A., 2788.  
 Riddle, R., 2390, 3034.  
*Rideal, E., see H. Adams.*  
*Rideal, E., see H. Gould-Adams.*  
*Rideal, E., see J. Parlington.*  
 Rideal, E., 1005, 2424.  
 Rideal, E., and A. Tarrant, 1006A.  
 Rideal, E., and H. Taylor, 1228.  
 Ridel, P., 2693.  
 Rider, C., 724.  
 Ridge, 1079.  
*Ridge, H., see A. Merton*  
 Ridge, H., 1073, 1078, 1079.  
*Ridsdale, G., see E. Maxted.*  
 Riecke, E., 1018.  
 Rieckher, T., 2446.  
 Riedel, A., 1005.  
 Riedel, F., 1261  
 Riedel, J., 2463, 2510, 2879, 2882.  
 Rieder, 2921.  
 Riegler, E., 1051.  
 Riekman, A., 1313  
 Riely, L., 2795.  
 Riesenfeld, 2855.  
*Riesenfeld, E., see W. Garraway.*  
 Riesenfeld, E., 1111, 1123, 1303.  
 Riesenfeld, H., and F. Taurke, 79, 660.  
*Riesler, see Schutzenberger.*  
 Riess, 2353  
*Rieter, see H. Sulzer-Rieter.*  
 Rieth, K., 154.  
 Rigby, J., 2980  
 Rigby, T., 1232, 2409.  
 Rigby, T., and Wetcarbonizing, Ltd., 2997.  
 Rigell, M., 2604.  
 Rigg, G., 1075.  
 Rikli, R., 1586  
 Riley, A., 234  
*Riley, J., see V. Gloag.*  
*Riley, J. H., & Co., see R. Huebner.*  
 Riley, J., and J. Barnes, 1344.  
 Riley, L., 2790, 3032, 3062.  
*Rilliet, see Barreswil.*  
*Rimbach, see Kroeber.*  
*Rimbach, C., see W. Kroeber.*  
*Rimbach, E., see H. Leo.*  
 Rimbach, E., 2503.  
 Rimell, J., 2568.  
*Rimini, E., see A. Angeli*  
 Rimini, E., 2522.  
 Rinck, A., 2409  
 Rinckleben, P., 2483.  
 Rindsberg, J., 2695  
 Ring, E., 460.  
*Rinman, see Strehlenert.*  
 Rinman, E., 27, 282, 292, 312, 660, 664, 2396, 2421, 2755, 2994, 3072.  
*Rintoul, W., see F. Nathan.*  
*Rintoul, W., see R. Robertson.*  
 Rintoul, W., 2166, 2545.  
 Rintoul, W., T. Nolan and Nobel's Explosives Co., 2254.  
 Rintoul, W., D. Peacock, and Nobel's Explosives Co., Ltd., 2960.

- Riordon, C., 2597, 2699, 2700.  
 Rio Tinto Co., 1045, 1048.  
 Riotte, 1572.  
 Rioux, P., and L. de Pariente, 2603.  
*Ripper, L., see R. Wegscheider.*  
 Rippert, 1086.  
 ●Rippert, P., 1313.  
*Risdale, see Maxted.*  
 Rishel, G., 2679.  
 Riskmers, W., 2947.  
 Risler, H., 1974, 2555.  
 Risler, M., 2751, 2800, 2887.  
 Risler-Bennat, H., 1060.  
*Risoliere, E., see E. Strange.*  
 Risse, B., 2859, 2860.  
 Risse, E., 2867.  
*Risse, F., see F. Semmler.*  
*Risse, R., see Photochemische Fabrik R. Risse Ges.*  
*Ristori, E., see W. MacNab.*  
*Ritchie, see Muir.*  
 Ritschke, F., 2954.  
 Ritsert, E., 2482, 2544.  
*Rillener, A., see G. Lunge.*  
 Ritter, 2.  
*Ritter, E., see P. Liechti.*  
 Ritter, E., and C. Kellner, 274, 1088.  
 Ritter, H., 1060.  
 Ritter, R., 231.  
 Ritter-Kellner, 290, 318, 322.  
*Rivals, P., see M. Berthelot.*  
 Rivat, G., 428.  
*Rive, A. de La, see A. de La Rive.*  
*Riviere, C., see L. Clement.*  
 Riviere, C., and L. Clement, 2122.  
 Riviere, L., 2421.  
*R. M. D. Syndicate, Ltd., see A. Muller.*  
 Roake, J., 2406.  
*Roark, G., see A. Dox.*  
 Roat, E., 448.  
*Robatel, see Buffaud.*  
*Robatel, T., see Societe B. Buffaud.*  
 Robaz, K., 2776.  
 Robb, A., 2834.  
 Robb, G., 1011, 1104.  
 Robbins, 3049.  
*Robelet, see Soc. Mariller.*  
 Robenstorff, H., 2346.  
*Robert, M., see G. Baume.*  
*Roberts, see G. MacRoberts.*  
*Roberts, see Masselon.*  
 Roberts, 390, 1573, 2823.  
*Roberts & Co., see Boake and Boake.*  
*Roberts & Co., see A. Boake.*  
*Roberts & Co., see G. Boiteau.*  
*Roberts & Co., see T. Durrans.*  
 Roberts, A., 1006A.  
 Roberts, B., 301.  
 Roberts, C., 301, 390.  
*Roberts, F., see W. Giles.*  
*Roberts, F., see E. Luck.*  
*Roberts, G., see A. Boake.*  
 Roberts, G., 935.  
*Roberts, H., see G. Arnold.*  
 Roberts, H., and J., 2729.  
*Roberts, J., see H. Roberts.*  
*Roberts, J., see A. Smith.*  
 Roberts, J., 698, 2793.  
 Roberts, L., 485.  
 Roberts, R., 331, 592.  
 Roberts, T., and J. Dale, 729.  
 Robertson, 2827.  
 Robertson, A., 2122.  
 Robertson, D., 2869.  
 Robertson, D., and M. Wollenweber, 2960.  
 Robertson, G., 101, 104, 1033.  
*Robertson, H., see W. Earles.*  
*Robertson, J., see R. Strachan.*  
 Robertson, R., 1705, 1718, 1908, 2267, 2354, 2375, 2953.  
 Robertson, R., J. Masson, and A. Drummond, 2554.  
 Robertson, R., and S. Napper, 2353, 2363.  
 Robertson, R., and W. Rintoul, 2558, 2675.  
 Robertson, R., and B. Smart, 2325, 2340, 2341.  
 Robertson, W., 1579.  
 Robeson, J., 291, 313, 1074, 1075.  
 Robey, G., 2861.  
 Robie, J., 2739.  
*Robin, see S. Schwabe & Co.*  
 Robin, J., 2596.  
 Robinet, 195.  
*Robinoff, M., see C. Schwalbe.*  
*Robinson, A., see T. Parker.*  
*Robinson, E., see W. Oates.*  
 Robinson, E., 3049.  
 Robinson, F., 2779.  
 Robinson, H., 2862.  
 Robinson, J., 1018, 2685, 2689, 2699, 2919.  
 Robinson, J., and Williamson, 2867.  
 Robinson, M., 391, 2900.  
 Robinson, R., 2814.  
*Robinson, T., see J. Hargreaves.*  
 Robinson, T., 226, 3066.  
 Robinson-Bindley, W.,<sup>c</sup> A. Weller, and E. Dulcken, 2779.  
 Robiquet, 1567.  
 Robiquet, E., and J. Duboscq, 1590, 1591, 2825, 2827, 2829, 2885.  
 Robrecht, R., 1881.  
*Robson, see J. Kuemen.*  
*Robson, E., see Szabulite, Ltd.*

- Robson, A., see Sabulite, Ltd.*  
 Robson, J., 230, 3066.  
*Robson, W., see J. Kuenen.*  
 Roburite Explosives Co., C. Roth,  
 and W. Orsman, 2946.  
 Rocasolano, A., 1022.  
*Roche, see La Roche.*  
 Roche, 2809, 2835, 2838.  
*Roche, S., see M. Sanlaville.*  
 Roche, T., 2903.  
*Rochereau, A., see A. Tolmer.*  
*Rochereau, A., see T. Truchelut.*  
 Rochleder, F., 3.  
 Rochleder, F., and W. Heldt, 3.  
*Rochussen, F., see J. Bredt.*  
 Rochussen, F., 2522.  
 Rockliff, W., and J. Booth, 1110.  
 Rockteschel, W., 449.  
*Rockwood, G., see F. Forster.*  
 Rockwood, G., 2692.  
 Rocques, X., 2414, 2480.  
*Rodakiewicz, A., see L. Liljinski.*  
 Rodenwald, 390.  
 Roder, 1363.  
 Roder, P., and B. Raabe, 3079.  
*Rodes, see F. Matas.*  
 Rodet, and Gruechoff, 2785.  
 Rodewald, H., 391, 406, 441, 454.  
 Rodewald, H., and A. Kattein, 389,  
 410, 413, 441.  
 Rodger, 2828.  
*Rodger, J., see T. Thorpe.*  
 Rodrigues, J., 2911.  
 Roe, R., 301.  
 Roebcr, 676.  
 Roebuck, 1007.  
 Roekner, F., and R., 301.  
*Roekner, R., see F. Roekner.*  
 Röder, P., 3047.  
 Röder-Bruno, Raabe, Akt.-Ges., P.,  
 2762.  
 Roederer, G., 712.  
 Roehm, E., 2744.  
 Röhm, O., 562, 664, 2503.  
 Roehm, R., 2746.  
 Roehmann, F., 417, 480.  
 Roehr, 480.  
 Roehr, C., 2517.  
*Röhrens, H., see J. Rohrens.*  
 Röhrens, J., 2639.  
 Röhrens, J. and H., 2634.  
 Roehrig, A., 1060.  
 Roehrig, W., 594.  
 Römer, A., 227.  
 Römer, A., and E. Hölken, 226.  
*Römer, H., see H. Daniel.*  
*Roentgen, W., see A. Kundt.*  
 Röntgen, W., and L. Zehnder, 2432,  
 2441, 2456.  
 Roese, E., 2476, 2724.  
 Roesler, A., 2524, 2528.  
 Roessing, A., 477.  
 Rössler, O., 1018, 1036, 2604.  
 Rössler, R., 1086, 1295, 1365.  
 Roessler, S., 2413, 2474, 2477.  
*Roetheli, see Gnehm.*  
 Roetheli, 67.  
 Roettger, G., 684, 686.  
*Roffey, M., see W. Roffey.*  
 Roffey, W., and M., 2492.  
 Rogalski, B., 548.  
*Roge, G., see F. Stanes.*  
 Roge, G., 1303.  
 Roger, 2838.  
 Roger, A., 2600.  
 Roger, G., 2702.  
 Roger, H., F. Branel, and E. Pro-  
 beck, 2498.  
 Roger, J., 2726.  
 Roger, V., and J. Ledion, 2668.  
 Rogers, C., and A. Oswald, 1081.  
*Rogers, E., see D. Westerfield.*  
 Rogers, H., 301.  
 Rogers, J., 313.  
 Rogers, R., 948, 1443.  
 Rogers, W., 2456, 2479.  
 Rogers, Welch & Co., 3049.  
*Roggenkaemper, see E. Vahlkamp.*  
 Roggenkamper, E., 2584, 2614, 3056.  
 Rogow, M., 2776.  
 Roh & Co., R., 2729.  
*Rohan, see W. D'Rohan.*  
 Rohe, C., 2713.  
 Rohland, P., 313.  
*Rohleder & Co., see Chem. Fabrik  
 Phoenix.*  
 Rohm and Haas, 2776.  
 Rohmer, 938.  
 Rohmer, M., 701, 897.  
 Rohrer, K., 1635.  
*Rohrmann, L., see W. Dieterle.*  
*Rohrmann, L., see O. Guttman.*  
*Rohrmann, L., see G. Lunge.*  
 Rohrmann, L., 1217.  
 Rohrmann, L., and H. Niedenführ,  
 839, 1282.  
 Rohrmann, L., and G. Streit, 985.  
 Rolfe, G., and Defren, 391.  
 Rolfe, G., G. Defren, W. Faxon, and  
 H. Geromanos, 479.  
 Rolfe, G., and H. Geromanos, 391.  
 Rolier, P., 2855, 2918.  
 Roll, K., 2599.  
 Rolland, J., and P. Mauciere, 2560.  
 Rollason, 901, 2885.  
*Rollason, A., see S. Barnwell.*  
*Rollason, A., see C. Townsend.*  
 Rollason, A., 1617, 2574, 2611, 2693,

- 2706, 2799, 2800, 2822, 2827, 2861, 2901, 2960.  
*Rollett, A.*, see *F. Klatte*.  
*Roman*, 2827, 2831.  
*Roman, G.*, 2835.  
*Roman, J.*, 1011.  
*Romanes*, see *Cumming*.  
*Romburgh, P. van*, 1861.  
*Romegialli, A.*, 2455.  
*Romelaere*, 2838.  
*Romer, A.*, 3066.  
*Romer, A.*, and *E. Holker*, 3066.  
*Romer, H.*, see *H. Daniel*.  
*Rommeclaere, L.*, 2844.  
*Rommenholler, C.*, and *F. Luhmann*, 791, 1018.  
*Romocki, S. von*, 1638, 2944, 2962.  
*Ronda*, see *De Ronda Osborn Co*.  
*Ronsonnel*, 2876.  
*Rood, N.*, 2808.  
*Rood, O.*, 2914, 2916.  
*Roof, H.*, see *B. Moore*.  
*Rooker, J.*, see *W. Tooth*.  
*Rooney, J.*, 2396.  
*Roos, L.*, 1025.  
*Roos, L.*, and *E. Thomas*, 402.  
*Roos, T.*, 2714.  
*Roosevelt, A.*, 2684.  
*Root, E.*, 451.  
*Root, F.*, see *W. Brandt*.  
*Root, M.*, see *G. Langdell*.  
*Roots*, 1179.  
*Roozboom, H.*, 806, 1060.  
*Rosalt, A.*, 2416.  
*Rosati, T.*, 2416.  
*Roschdestwensky, M.*, see *A. Doroschewsky*.  
*Roscher, H.*, 2694.  
*Roscoe, H.*, see *R. Bunsen*.  
*Roscoe, H.*, 954, 1722.  
*Roscoe, H.*, and *J. Lunt*, 676.  
*Rose*, 2476.  
*Rose, A.*, 2746.  
*Rose, H.*, see *B. Neumann*.  
*Rose, H.*, 1018, 1101.  
*Rose et Cie.*, see *L. Bethisy*.  
*Rosen, J.*, 2589, 2590.  
*Rosenband, M.*, see *Rosenblatt*.  
*Rosenberg, A.*, 335.  
*Rosenberg, E.*, 642, 2585.  
*Rosenberg, I.*, see *F. Semmler*.  
*Rosenberg, M.*, see *J. Bredt*.  
*Rosenblatt, and M. Rosenband*, 313.  
*Rosenblum, D.*, 664, 2637.  
*Rosenblum, D.*, *L. Brech*, and *E. Tyborowski*, 660.  
*Rosenblum, D.*, and *E. Tyborowski*, 664.  
*Rosenblum, J.*, *A. de Gottinai*, *L. Brech*, and *E. Tyborowski*, 278.  
*Rosenbusch, G.*, see *V. Perelzweich*.  
*Rosencrans, S.*, 2407.  
*Rosenfeld, M.*, 69, 676, 1018, 2900.  
*Rosenfelder*, see *Fischer*.  
*Rosengarten, A.*, 1549.  
*Rosengarten, G.*, 2788, 2789.  
*Rosenhain, C.*, 289.  
*Rosenheim, A.*, and *E. Sasserath*, 1060.  
*Rosenheim, O.*, 1335, 2446.  
*Rosenheim, T.*, see *J. Munk*.  
*Rosenheimer, J.*, and *F. Heim*, 1335.  
*Rosenlecher, R.*, 1330.  
*Rosenstiehl*, see *Noelting*.  
*Rosenstiehl*, 67.  
*Rosenthal*, see *E. Nolting*.  
*Rosenthal*, 313.  
*Rosenthal, A.*, see *L. Kuntz*.  
*Rosenthal, O.*, 2780.  
*Rosenthal, R.*, 750.  
*Rosenthal, T.*, 1924, 2560.  
*Rosenthal, W.*, 2780.  
*Rosenthaler, L.*, 155, 2466.  
*Roser*, see *Fehling*.  
*Roser, W.*, 2522.  
*Roshdestwensky, M.*, see *Doroszewsky*.  
*Rosier, C.*, 2683, 2746, 2748, 2861, 2901.  
*Rosing, A.*, see *R. Otto*.  
*Rosolino, F.*, 2788.  
*Ross*, 2901.  
*Ross, A.*, see *F. Kraft*.  
*Ross, C.*, 1018.  
*Ross, H.*, 3039, 3047.  
*Ross, J.*, 2726.  
*Ross, J.*, and *J. Schneider*, 227, 3066.  
*Ross, O.*, 1031.  
*Ross, W.*, 676, 917.  
*Roszbach, G.*, see *S. v. Kostanecki*.  
*Rousseau, A.*, 2560.  
*Roszell*, 2827.  
*Rosset*, see *Besson*.  
*Rossetti, F.*, 1018.  
*Rossi, de*, see *De Rossi*.  
*Rossi, A.*, see *B. Bertelli*.  
*Rossi, A.*, see *C. Du Mojay*.  
*Rossi, A.*, see *A. Lieben*.  
*Rossi, A.*, see *A. Saytzeff*.  
*Rossi, A.*, 2430.  
*Rossi, C.*, 688, 709, 715, 843, 958, 1001, 1005, 2804.  
*Rossi, E.*, 676, 695.  
*Rossi, F.*, 695.  
*Rossi, G. de*, and *A. Sella*, 2491.  
*Rossi, J.*, 328.  
*Rossig*, 2833.  
*Rossignol*, 2838.  
*Rossignol, J.*, 3.

- Rossiter, E., 1063.  
 Rossiter, E., H. Crowther, and G. Albright, 927.  
 Rossler, C., 2607.  
 Rost, E., 2412.  
 Rostaing, C., 1011.  
 Rosumoff, B., *see* H. Wolff.  
 Roth, *see* Kalinowsky.  
 Roth, 711, 1871.  
 Roth, C., *see* Roburite Explosives Co.  
 Roth, F., 960.  
 Roth, H., *see* A. Wohl.  
 Roth, L., *see* R. Gentzen.  
 Roth, L., *see* W. Gentzen.  
 Roth, L., and W. Gentzen, 200, 213.  
 Roth, L., 695, 924, 1006B.  
 Roth, W., 710.  
 Rothe, *see* A. Lottermoser.  
 Rothe, F., *see* Elektrochem Werke.  
 Rothe, H., 2993.  
 Rothenbach, F., and L. Eberlein, 2488.  
 Rother, R., 437.  
 Rothert, 390.  
 Rothes Meer, *see* Akt. Ges. Rothes Meer.  
 Rothmund, V., 2404, 2463, 2503.  
 Rothschild, E., 2602.  
 Rothwell, C., *see* J. Thornton.  
 Rothwell, C., 519.  
 Rothwell-Jackson, C., and E. Hunt, 3066.  
 Rotier, and Waldack, 2818, 2819.  
 Rotinjnz, L., 1035.  
 Rotondi, E., 1060.  
 Rotondi, E., and M. Michela, 2993.  
 Rotophot Ges. f. Photographische Industrie, 2919.  
 Rott, C., 2576, 2677.  
 Rotten, 2406.  
 Rotten, M., 1018, 1029, 2637.  
 Rotter, C., 2586.  
 Rotweiler Pulverfabriken, *see* Vereinigte Köln-Rotweiler Pulverfabriken.  
 Rouaix, P., 2825.  
 Roudiez, P., 2611.  
 Rouget, A., 2788.  
 Rouget, J., 2788.  
 Rouland, 2754.  
 Rouleau, J., 2601.  
 Roullier, C., 2600.  
 Round, W., 843.  
 Roure-Bertand Fils, 2463.  
 Rouse, W., and A. Johnston, 3050.  
 Rousseau, *see* Societe des Procees Rousseau.  
 Rousseau, A., 2393, 2493.  
 Rousseau, P., M. de Chanterac, and M. de la Baume, 2414.  
 Roussel, J., 927.  
 Roussel, H., 704.  
 Roustan, M., 1018.  
 Routledge, W., 2697.  
 Rouvier, 413.  
 Rouvier, E., 390, 408.  
 Roux, *see* Metschnikoff.  
 Roux, *see* Nocard.  
 Roux, B., 2776.  
 Roux, C., 2644.  
 Roux, E., *see* L. Maquenne.  
 Roux, E., *see* J. Wolff.  
 Roux, E., 125.  
 Roux, L., *see* L. Barbier.  
 Roux, L., *see* P. Barbier.  
 Roux, L., and E. Sarrau, 1801.  
 Rouxeville, E., 2518, 2672, 2921.  
 Rovira, J., and H. Ahrlé, 2583.  
 Row, T., *see* B. Viswanath.  
 Rowe, A., 2671, 2720, 2755.  
 Rowe, P., 2704.  
 Rowe, W., *see* Hargreaves.  
 Rowell, F., 2751, 2864, 2899.  
 Rowland, W., 2556.  
 Rowlands, P., 896.  
 Rowley, J., 2600.  
 Rowney, T., 2471.  
 Roy, *see* LeRoy.  
 Roy, 197, 2838, 2901.  
 Roy, J., 1619, 1638, 2740.  
 Royal-Dawson, H., 1251.  
 Roybier, V., 2679, 2701, 2715.  
 Royce, C., 2611, 2726, 2727.  
 Royer, E., 1018.  
 Royle, F., 2582, 2702.  
 Royme, *see* De La Royme.  
 Royston, E., *see* C. Montgomery.  
 Rubaschkin, 2782, 2783.  
 Rubaschkin, W., 2783.  
 Rubbens, G., 2418.  
 Rubber Balloon Co., 2729.  
 Rubber and Celluloid Harness Trimming Co., 2713.  
 Rubber Substitute, Ltd., *see* E. Muskell.  
 Rubie, I., and J. MacManus, 2748, 2911.  
 Rubiel, J., 454.  
 Rubini, M., 2567.  
 Rubricius, H., 1055.  
 Ruck, 293.  
 Ruckteschell, W. v., 320, 1810.  
 Rudeloff, 1457.  
 Rudeloff, J., 1456, 1518, 2966.  
 Rudeloff, J., and A. and W. Allendorf, 2947, 2966.  
 Ruder, C., & Co., 2526, 2527.  
 Rudge-Whitworth, Ltd., *see* C. Pugh.

- Rudnew, 2781.  
*Rudolf, A., see A. Lecoeur.*  
 Rudolfi, 2788.  
 Rudolph, C., 452.  
 Rudolphi, J., and G. Thissell, 849.  
 Rudorf, G., 2434.  
 Rudukoff, T., and A. Alexandroff, 2482.  
*Rue, see W. De la Rue.*  
 Rue, de la, 2788.  
*Rue, J., see A. White.*  
 Rue, W. de la, and H. Mueller, 1717.  
*Rübel, R., see J. Bredt.*  
 Ruediger, H., 213.  
*Rüdiger, M., see J. Brühl.*  
 Rühle, A., 2411.  
 Ruhlmann, R., 676.  
 Rüll, P., 664.  
*Ruelle, see F. Alary-Ruelle.*  
 Rütgerswerke Akt. Ges., 2705, 2762, 2776.  
*Rützebeck, A., see S. Grant.*  
 Ruff, O., 676, 935.  
 Ruff, O., and A. Franz, 183.  
 Ruff, O., and H. Graf, 1034.  
 Ruff, O., and P. Praetorius, 2779.  
*Ruffer, see Crendironpoulis.*  
*Ruffin, see I. Bang.*  
*Ruffin, C., see A. Bang.*  
 Ruggbri, 2411.  
 Ruhemann, S., and D. Carnegie, 2431.  
 Ruht, W., 301.  
 Ruitjes, J. de, 929.  
 Rumford, B., 3.  
 Rumine, G., de, 1591.  
*Rump, E., see J. König.*  
 Rumpf, C., 232, 2400, 2650.  
*Runge, see M. Fluri.*  
 Runge, 242.  
 Runge, C., and F. Paschen, 1018.  
 Runge, F., 243, 262.  
 Runge, H., 849.  
 Runge, W., 2732, 2737.  
 Rupe, H., and A. Porai-Kochitz, 262.  
 Rupert, F., 1006.  
*Rupley, G., see W. Clark.*  
 Rupp, E., 1335, 2461, 2466.  
 Ruppe, H., 2522.  
*Ruppel, C., see H. Lange.*  
 Ruppel, C., 2560.  
*Ruppert, F., see F. Collischon.*  
 Ruppert, F., 3014.  
 Rupperecht, G., 1036.  
 Rusby, H., 492, 2511, 2514.  
 Rusch, F., 2986.  
*Russ, F., see V. Ehrlich.*  
*Russ, F., see A. Grau.*  
*Russ, F., see A. Mandl.*  
 Russ, F., 676, 694, 699, 794, 850.  
 Russ, F., and L. Ehrlich, 699, 709, 721, 1005.  
 Russ, F., and E. Pokorný, 676, 721.  
 Russ, J., 2406, 2407, 2409, 2422, 2431.  
*Russ, S., see H. Colwell.*  
 Russak, H., and O. Hanstein, 2000.  
 Russel, 2825.  
*Russel, D., see C. Cross.*  
 Russell, J., 1590, 1629.  
 Russell, 2816, 2829.  
 Russell, C., 2798, 2831, 2903.  
 Russell, E., and J. Smith, 1060.  
 Russell, E., and N. Smith, 1101, 1133.  
 Russell, F., and A. Jung, 2737, 2738.  
 Russell, H., 2912.  
 Russell, J., 1018, 1598, 2960.  
 Russell, J., and W. Hutton, 1081.  
 Russell, W., 152, 751, 988, 2916.  
 Russell, W., and W. Lapraik, 714, 2433, 2458.  
 Russner, J., 1018.  
 Russow, E., 390.  
 Ruth, R., 2879.  
 Ruthenburg, M., 1087.  
 Rutherford, 679, 1617.  
 Rutherford, E., 688.  
 Rutherford, J., 2814.  
 Ruthven, 2644.  
*Rutstein, L., see E. Worden.*  
 Rutstein, L., 3487.  
 Ruttan, 2424.  
 Ruttan, R., 205.  
 Rutterford G., & Son, and J. Huntley, 2740.  
 Ruttin, R., 301.  
 Rutzki, 1593.  
 Ruys, J., 1018.  
*Ryan, see J. McKechnie.*  
*Ryan, E., see J. Juel.*  
 Ryan, G., 2743.  
 Ryan, H., and J. Drumm, 2552.  
 Ryan, H., and P., 2553.  
*Ryan, P., see H. Ryan.*  
 Ryan, P., 2568.  
*Ryan and Vickers, Ltd, see J. McKechnie.*  
 Ryde, J., 2600.  
 Ryder, A., 2660, 2694, 2717.  
*Ryder, J., see A. Michael.*  
 Ryder, J., 2783.  
 Rydill, G., 2901.  
 Rylay, 2829.  
 Ryley, J., 2835.  
 Ryley and Parry, 2886.  
*Ryn, see Van Ryn.*  
 Ryon, E., and C. Waite, 2634.  
 Ryves, E., 2960.

- Snare, O., see C. Weigelt.*  
 Saare, O., 441, 461, 2416.  
 Saare, O., and H. Hanow, 2480.  
 Saatmann, F., 946.  
 Sabalitschka, T., 2408, 2410, 2425.  
 Sabanejew, A., 25.  
 Sabaschnikoff, V., 1036.  
 Sabatani, L., 100, 2411.  
 Sabatier, 2808, 2867, 2886.  
 Sabatier, P., 1018, 1261, 1306, 2437.  
 Sabatier, P., and G. Gaudion, 2995.  
 Sabatier, P., and A. Mailhe, 1114, 2437, 2444, 2500, 2548, 3004.  
 Sabatier, P., and J. Senderens, 676, 711, 714, 715, 718, 917, 2436.  
*Sabbston, F., see J. Goodfellow.*  
 Sabine, 1600.  
 Sabulite, Ltd., W. McCanlish, E. and A. Robson, 2953.  
 Sacc, 161.  
 Sacc, F., 3.  
 Sacc, J., 196.  
*Saccharinfabrik, see A. Klages.*  
 Saccharinfabrik Akt.-Ges. v. Fahlberg, List & Co, 986, 1006, 1079.  
 Sachs, 234, 287.  
 Sachs, J., 225, 394.  
 Sachs, S., 676, 848.  
 Sachs, W., 3049.  
 Sachs-Bankges, Quellmalz & Co., 313.  
 Sachse, A., and E. Collett, 932.  
 Sachse & Co., 2590.  
 Sachsenburger, 1069.  
 Sachsenburger Akt.-Maschinenfabr. u. Eisengiesserei, 1070.  
 Sachsenroder, G., 2601.  
 Sachsse, 248.  
 Sachsse, R., 391, 397, 406, 478.  
*Sack, J., see J. Murumow.*  
 Sackur, O., 1134, 2491.  
 Sackville, I., 2609.  
 Sackville, J., 3077.  
 Saco-Lowell Shops, 642, 649, 650, 651, 653.  
 Sadebeck, 243.  
 Sadtler, 743, 2657, 2658.  
 Sadtler, S., 1831, 2483, 2563.  
*Saduyn, Gesellschaft, see Deutsche Saduyn Gesellschaft.*  
 Sächs, 1249.  
 Saetersmoen, J., and C. Rabot, 894.  
*Safety Celluloid Co., see F. Paschke.*  
 Safety Celluloid Co., 3008.  
 Saffray, C., 2600.  
 Sagar, J., 3066.  
 Sage, C., 8001.  
 Sage, F. & Co., Ltd., and N. Feary, 3048.  
 Sage, W., 466.  
*Sageman, P., see J. Holmes*  
 Saget, 3078.  
 Saget, M., 181, 2641, 3071.  
 Saget and Suevern, 3052, 3054.  
 Sagrebin, W., 2406, 2443, 2458, 2509.  
 Sagrebin, W., and N. Menschutkin, 2406, 2436, 2460, 2461.  
 Sahler, 2810, 2812.  
 Sahlstrom, C., and E. Parr, 361.  
 Sailer, 2410.  
 Saillard, 2827.  
 Saillard, B., 2383.  
 Sainte-Beuve, A., and G. Marconnet, 1072, 1076.  
 Sainte-Claire-Deville, C., 1013.  
 Sainte-Claire-Deville, H., 2511.  
 Saint Florent, de, 2825, 2833, 2834.  
 Saint-Germain, J., 2640.  
 St. Gobain, 1019.  
 Saint-Rene, J. de, and J. Tissier, 329, 2634.  
 Saint-Yves, A. de, 2993.  
*Saint, see also St., p. 3453*  
 Saito, 390.  
 Sajo, C., 460.  
 Sajontschewsky, W., 2498.  
 Sajotschewski, 2503.  
 Sajotschewsky, W., 1060.  
 Sakai Celluloid Co., 2668.  
 Sakane, S., 2589.  
*Sakowicz, see T. van Korvin Sakowicz.*  
*Sala, P. de La, see P. de La Sala.*  
 Sala, 1007.  
 Saladin, M., 2979.  
*Salambeni, see Metschnikoff.*  
 Salamon, M., and W. Seaher, 2393, 3034.  
 Salas, A. de, 566.  
*Salathe, F., see G. Lunge*  
 Saleil, E., 2912.  
*Salembeni, see Grenet.*  
 Salessky, W., 1283, 1287.  
 Salet, G., 676, 718, 1018.  
*Salimbeni, see F. Grenet.*  
*Salis, R. v., see S. v. Kostanecki*  
 Salis, Schwabe & Co., 233.  
 Salis, Schwabe & Co., A. Bins, and R. Boral, 225.  
 Salisbury, S., 1010.  
*Salkowski, E., see H. Salkowski.*  
 Salkowski, E., 238, 325, 1018, 2410.  
 Salkowski, H., and E., 1018.  
*Sallinger, H., see M. Jacoby.*  
 Sallinger, H., 484.  
 Salm, E., and S. Prager, 676.  
 Salmon, 1570, 1573.



- Salmon, J., 2845.  
 Salom, G., 1303.  
 Salom, P., 1232.  
 Salomon, 406.  
 Salomon, F., 391, 478.  
 Salomon, W., 1018.  
 Salt, T., 2743.  
 Salter, J., 389.  
*Saltpetersäure Industrie Gesellschaft, see H. Pauling.*  
*Saltpetersäure Industrie Ges.*, 690, 693, 700, 721, 885, 893, 982, 985, 986, 993, 1005, 1006A, 1309, 1420.  
*Saltpetersäure Industrie Ges., and Pauling*, 690.  
*Salts Extraction Syndicate, Ltd., see H. Sulman.*  
 Salvador, E., 850.  
 Salvadori, 676.  
*Salvetat, see J. Barral.*  
 Salvétat and J. Barral, 163.  
 Salzbergwerk Neustassfurt, 3024.  
 Salzbergwerk Neustassfurt, and Teilnehmer, 3024.  
 Salzer, T., 1018.  
 Salzmann, 2741.  
 Samec, M., 444, 445.  
 Samec, M., and S. Jencic, 444.  
*Samelson, I., see T. Poleck.*  
 Sameshima, J., 2399.  
 Samin, P., 2693.  
 Sammet, C., and J. Merril, 2637.  
 Sammet, F., 3054.  
*Sammett, G., see A. Noyes.*  
 Samson, E., 2703, 2741.  
 Samuel, A., 2599, 2614, 2626.  
 Samuel, R., 695.  
 Samway, D., 2792, 2794.  
*Sanborn, A., see I. Brown.*  
 Sanborn, A., 2706.  
 Sanborn, A., and R., and A. Kanouse, 2706.  
 Sanborn, H., H. McMahon, J. Overbury, and S. Young, 1032.  
*Sanborn, R., see A. Sanborn.*  
 Sand, J., and O. Burger, 712.  
 Sandberg, and G. Sundblad, 301, 313.  
 Sandell, J., 2903.  
 Sandell Films, and Plates Ltd., and W. Smalley, 2751, 2892.  
*Sandemann, D., see C. Shaw.*  
 Sander, 3071.  
 Sander, A., 5, 313, 690, 1098, 1332.  
 Sander, O., 2600.  
 Sanders, 2825.  
 Sanders, A., 2914.  
 Sanders, J., 2818.  
 Sanders, M., 972, 2808, 2813, 2870.  
 Sanderson, A., 2907, 2917.  
 Sanderson, W., 2718.  
 Sandlser, G., 2414.  
 Sandman, 2758.  
 Sandman, M., 2911.  
 Sandoz-Moritz & Co., C., 2634.  
 Sands, A., 2743.  
 Sandtner, 2798, 2887.  
 Sandy Hill Iron and Brass Works, 2114.  
 Sanfilipo, I., 1018.  
 Sanford, P., 2940.  
*Sanfourche, A., see P. Jolibois.*  
 Sanfourche, A., 695, 847.  
 Sanger-Shepherd, E., and O. Bartlett, 2882.  
 Sanguinetti, H., 301.  
 Sanguinetti, H., and P., 302.  
 Sanguinetti, J., 419.  
*Sanguinetti, P., see H. Sanguinetti.*  
 Sankyo, Ltd., 3001.  
 Sanlavlille, C., 2637, 2644, 2650.  
 Sanlavlille, M., and S. Roche, 1631.  
 Sans, C., 2855, 2858, 2867.  
 Sansome, A., 2641.  
 Sansome, R., 2600.  
*Sanson, see R. Grimoire-Sanson.*  
 Sansone, A., 3056.  
 Sansone, R., 608.  
 Santa, L., 1235, 1236, 1291.  
 Santo-Canale, F., 2422.  
 Santolyne, 2419.  
 Saposchnikoff, 1407, 1409, 1411.  
 Saposchnikoff, A., 676, 952, 1403, 1404, 1405, 1673, 1674, 1684, 1687, 1711, 1826, 2924.  
 Saposchnikoff, A., and M. Borisoff, 1713.  
 Saposchnikoff, A., A. Goudima, and V. Koutovski, 676, 695.  
 Saposchnikoff, A., and W. Jagello-witsch, 1712, 2364.  
 Saposchnikoff, W., 399, 2641.  
 Saposchnikoff, W., and W. Minajeff, 64.  
*Saposchnikov, see Saposchnikoff.*  
 Sarasin, C., 2788.  
*Sarasin, J., see A. Pictet.*  
 Sarasin, J., 42, 407.  
 Sarason, L., 1026, 1036, 2516, 2634, 2644, 2648, 2650, 2776, 2896.  
 Sarfert, M., 227.  
 Sargent, J., 1820, 2788.  
 Sargent, W., 2689.  
 Sargent's Sons, C. G., 620.  
 Sarony, 2808.  
 Sarony, O., 2827, 2869, 2901.  
 Sarony, O., and R. Johnson, 2864.

- Sarrasin, P., 1073.  
*Sarrau, E., see L. Roux.*  
 Sarrau, E., and P. Vieille, 1626, 1698, 1795, 1796, 1797, 1866, 2487.  
 Sartori, A., 1018.  
 Saruw, 2988.  
*Sasserath, E., see A. Rosenheim.*  
 Sastry, S., 3024.  
*Satake, N., see Y. Ogawa.*  
 Satanite Powder Co., 1819, 1871.  
*Salow, S., see J. Takamine.*  
 Satow, S., 2551, 2602, 2669, 2754, 2765.  
 Saubermann, S., 2590.  
 Saudtner, F., 2908.  
*Sauer, A., see A. Ador.*  
 Sauer, A., and E. Ador, 1717.  
 Sauer, F., 2483.  
 Sauerbrey, R., and A. Wunsche, 1270, 1280.  
 Sauerstoff u. Stickstoff Ind. Hansmann & Co., 2408.  
 Sauerwein, 100, 1629, 1818, 2512.  
 Saulles, C. de, 1080.  
 Saunders and Wellesley, 2881.  
 Saunders, A., 2727.  
 Saunders, E., 2921.  
 Saunders, G., 1638.  
 Saunders, H., and W. Craske, 2742.  
*Saunders, J., see P. Marcelin.*  
*Saunders, J., see J. Perrin.*  
 Saunders, J., 1280, 1391.  
*Saunier, N., see F. de Mure.*  
 Sauran, F., 2627.  
 Saussure, 676.  
 Saussure, de, 391.  
 Saussure, L. de, 710.  
 Seussure, N., 3.  
 Saussure, N. de, 392.  
 Saussure, T., 389.  
 Sautermeister, C., 2514.  
 Sauton, B., 3081.  
 Sautter, C., 1010.  
*Sautter, R., see A. Klages.*  
 Sauvage, A., 2518.  
 Sauverzac, J., 2390, 2634, 2638, 2650.  
*Sauverzac, J. de, see A. Lacroix.*  
 Sauverzac, J. de, 2557, 2624.  
 Savage, E., 302.  
 Savage, C., 1063.  
*Savage, J., see J. Smith.*  
*Savage, W., see A. Hough.*  
 Savalle, D., 2413.  
 Savard, 2808.  
*Savare, B., see M. Padoa.*  
 Savary, J., 2416.  
 Savastano, A., 2716.  
 Savelsberg, J., 1310.  
 Savery, E., 660.  
 Saves, P., 921.  
*Sawyer, H., see C. Hudson.*  
 Sawyer, J., 2875.  
*Sawyer, R., see D. Frothingham.*  
 Sax, A., 2573, 2609.  
 Saxl, J., and L. Oberlander, 313.  
*Saxton, B., see J. D'Ans.*  
 Saxton, B., 676, 798.  
 Sayboldt, 2275.  
 Sayboldt, G., 2282.  
*Sayce, B., see W. Bolton.*  
 Sayce, B., 2799, 2827, 2832, 2842, 2844, 2845, 2846, 2905.  
 Sayce, B., and W. Bolton, 2798, 2838.  
*Saye, R., see J. Brock.*  
 Sayers, J., 2385, 2946.  
*Sayers, J., see C. Lundholm.*  
 Sayers, J., W. Wilson, and J. Thorburn, 2947, 2960.  
 Saylor, B., 302.  
*Saytzeff, A., see N. Grabowsky.*  
*Saytzeff, A., see J. Konnonikoff.*  
*Saytzeff, A., see G. Wagner.*  
*Saytzeff, A., see F. Wagner.*  
 Saytzeff, A., 2430, 2438.  
 Saytzeff, A., and A. Rossi, 2430.  
 Scagliarini, C., and T. Minganti, 55.  
 Scagliarini, G., 676, 899, 945.  
 Scagliarini, G., and A. Casali, 944.  
*Scala, A., see R. Nasini.*  
 Scales, F., 676.  
 Scamoni, 2901.  
 Scandallo, E., 2466.  
*Scandola, E., see G. Oddo.*  
 Scandola, E., 1260.  
 Scarenzio, 2792.  
 Scarpa, O., 676.  
 Schab, J., 2900.  
 Schach, W., 660.  
 Schacht, G., 100.  
 Schacht, W., 292.  
 Schachtebeck, F., 2960, 2963.  
 Schaefer, 3, 325, 2517.  
 Schaefer & Budenberg, 1233.  
*Schaefer A., see G. Schaefer.*  
*Schaefer, C., see E. Erdmann.*  
*Schaefer, C., see C. Thurber.*  
 Schaefer, G., and A., 30, 73.  
 Schaefer, K., 954, 1410.  
 Schaefer, K., and S. Deichsel, 954.  
 Schaefer, K., and H. Niggemann, 1410.  
 Schaefer, P., 2740.  
*Schäffer, H., see R. Fittig.*  
 Schaeffer, L., 242.  
 Schaeffler, E., 227.  
 Schäppi, H., 1040.  
 Schaer, E., 390, 409, 411.  
 Schärer, A., 2714.

- Schaertler, L., 2476.  
 Schaetz, F., and B. Van Den Hoek, 2718.  
 Schaffer, 2782.  
 Schaffer, C., 2409.  
 Schaffner, 1272.  
 Schaffner, L., 4.  
 Schaffner, M. v., and W. Helbig, 1029, 1030.  
 Schaffner, T., 2946.  
 Schall, C., 313, 1018, 2441, 2503, 2507.  
 Schall, C., and L. Kossakowsky, 2455, 2456.  
 Schall, M., 1415, 2534, 2580, 2584, 2604, 2610, 2618, 2644, 2689, 2693, 2713, 2776.  
 Schall, R., and Stickstoffwerke Aktien-Gesellschaft, 1001.  
 Schaller, E., 961, 985.  
 Schaller, F. von, see H. Steinherz.  
 Schaller, F. von, 1868.  
 Schamelhout, A., 1697, 2511, 2789, 2790.  
 Schanschieff, A., 2574, 2700.  
 Schanz, F., 2869, 2872.  
 Schapringer, 242.  
 Schapringer, S., 264.  
 Schardinger, F., 418, 445, 2444.  
 Scharff, M., and F. Slama, 1109.  
 Scharling, E., 476.  
 Schaschke, A., 2953.  
 Schattenmann, 459.  
 Schatzky, E., 2536.  
 Schaub, C., 461.  
 Schaub, J., 1890, 2598.  
 Schaufelberger, E., 285, 360.  
 Schauli, G., see J. Seck.  
 Schaum, K., 1018.  
 Schaum, K., and E. Schloemann, 2916.  
 Schauman, F., and A. Larsson, 2624.  
 Schaumann, O., 2683.  
 Scheauff, A., 2449.  
 Scheckenbach, J., 2466, 2485.  
 Scheel, see Thiesen.  
 Scheel, see Vietinghoff.  
 Scheel, see Vietinghoff-Scheel.  
 Scheel, see K. von Vietinghoff-Scheel.  
 Scheele, 2469.  
 Scheer, C. & Co., 1271.  
 Scheerer, T., see R. Marchand.  
 Schefcnik, W., see Aktien-Gesellschaft f. Zinkindustrie vorm. W. Grillo.  
 Scheffer, W., 2878, 2880.  
 Scheflein, H., 697, 990.  
 Scheibe, R., 1090.  
 Scheiblein, R., 2900.  
 Scheibler, 197.  
 Scheibler, C., 238, 389, 474.  
 Scheibler, C., and H. Mittelmeier, 184, 474, 480.  
 Scheibner, see Hornung.  
 Scheid, M., see K. Mueller.  
 Scheidemandel, J., see H. Andriessen.  
 Scheider, see Esser.  
 Schellen, 112.  
 Schellenberg, 187, 243.  
 Schellenberg, H., 348.  
 Schellens, W., 113.  
 Scheller, E., see A. Lipp.  
 Scheller, E., 2995.  
 Schellhass, H., 846, 986.  
 Schellhorn, F., see T. Flatau.  
 Schelling, E., 231.  
 Schelte and Giesecke, 2748, 2911.  
 Schenck, R., see W. Steinkopf.  
 Schenck, R., 1074, 1101, 1125, 2391, 2392.  
 Schendel, see also L. Van Schendel.  
 Schendel, L. Van, 2066.  
 Schenk, O., 676.  
 Schenk, R., see W. Bochers.  
 Schenke and Engelmann, 2688, 2689.  
 Schenker, 2503.  
 Schenrei-Roth, 565.  
 Schepper, Y. de, and P. Tak, 2472.  
 Scherb, C., 1276.  
 Scherbius, A., 693.  
 Scherbius, A., and H. Wach, 693.  
 Scherer, see Celluloid Fabrik Kirrmeier.  
 Scherfenberg & Prager, 703, 900, 1072, 1073, 1090, 1235.  
 Scherfenberg, R., 1073, 1079, 1271, 1280.  
 Schering, 1649.  
 Schering, E., see Chem. Fabr. auf Actien vorm. E. Schering.  
 Schering, E., 1626, 2063, 2468, 2512, 2780, 2803, 2837, 2867.  
 Scherings, 721.  
 Scherrer, K., 2766.  
 Schertel, A., 1210, 1249.  
 Schertler, F., 460.  
 Scheschukow, M., 2440.  
 Scheelig, P., see E. Steinbuch.  
 Schetty, J. v., Söhme, see Farberien v. J. Schetty Söhme.  
 Scheuble, R., 2536.  
 Scheuble, R., and E. Loebl, 2461.  
 Scheuclen, F., 225.  
 Scheuer, 676.  
 Scheuer, A., see Grossiteste.  
 Scheuer, A., 37, 693.  
 Scheuer, M., 2608.  
 Scheuer, N., 2602.  
 Scheuer, O., see A. Jacquered.

- Scheuffgen, R., 1919.  
*Scheunert, A., see W. Grimmer.*  
 Scheunert, A., 345.  
 Scheunert, A., and E. Lötsch, 345.  
 Scheunert, A., E. Lötsch, and W. Grimmer, 345.  
 Scheurer, 347.  
 Scheurer, A., 44, 54, 55, 57, 61, 68, 110, 121, 510, 528.  
*Scheurer, F., see E. Dollfus.*  
*Scheurer-Kestner, see F. Bode.*  
 Scheurer-Kestner, 1027, 1082, 1210, 1233, 1241, 1324. ••  
 Scheurer-Kestner, A., 1060, 1101, 1212, 1238, 1303, 1304, 1354, 1355.  
 Schewelin, W., 664, 2485.  
 Scheyn, F., 74.  
*Scheys, E., see J. Foltzer.*  
*Scheys, F., see J. Vermeesch.*  
 Scheys, F., 2634.  
*Schibsted, H., see K. Hofmann.*  
 Schick, C., 1006. •  
 Schick, K., 895, 915, 928, 2503.  
 Schick, K., and Aktien Gesellschaft für Stickstoffdünger, 927.  
 Schidrowitz, P., 2483.  
 Schidrowitz, P., and F. Kaye, 2483.  
 Schiebler, C., and H. Mittelmeier, 391.  
 Schiecht, G., 1122. •  
 Schiefferdecker, 2779.  
 Schiefferdecker, P., 2784.  
 Schiefner, T., 226, 230  
 Schiefner, T., and Getzner, Mutter & Co., 226.  
 Schiel, J., 2447, 2495.  
 Schiele, W., 2495.  
 Schier, L., 2899.  
*Schiess, see Mooser-Schiess.*  
 Schiff, 1866, 2795.  
 Schiff, H., 436, 710, 1018, 1060, 1523, 2398,  
 Schiff, R., 2387, 2431, 2453, 2489, 2490, 2496, 2499, 2500, 2503, 2504, 2506, 2507, 2508, 2514, 2522.  
 Schiff, R., and J. Puliti, 2522.  
 Schifferer, A., 417, 468, 473.  
 Schiffner, C., 1028, 1394.  
 Schild, H., 313.  
 Schilderman, S., 2983, 2984.  
 Schildhaus, G., and C. Condrea, 1087. •  
 Schill, E., 2485. •  
 Schillbach, H., 1042.  
 Schiller, 847.  
 Schiller, C., 2421. •  
 Schiller, N., 1018.  
 Schiller, R., and R. Bauer, 114.  
 Schilling, C., 2422. •  
 Schilling, K., 2709.  
 Schilling, R., 2559.  
 Schilling, R., and C. Kremer, 946.  
 Schilow, N., 2514.  
*Schimidzu, T., see F. Divers.*  
 Schimmel, A., 1063.  
*Schimmel & Co., see G. Stalman.*  
 Schimmel & Co., 2461, 2511.  
 Schimper, A., 389, 393, 397, 433.  
*Schindelmeyer, J., see J. Kondakow.*  
 Schindelmeyer, J., 1335, 2511. •  
 Schindler, A., 520  
 Schippang & Wehenkel, 1003, 2575, 2740, 2807, 2887.  
 Schippe, 242.  
 Schirm, C., 2776  
*Schirm, F., see M. Moest*  
*Schischkoff, L., see R. Munsen.*  
 Schjerning, H., 1639, 2297, 2298.  
 Schlagdenhauffen, 2447.  
 Schlamp, A., 2432.  
 Schlamp vom Hofe & Co., 1124.  
*Schlappig, O., see Deutsche Gummwaren-Industrie Schlappig & Co.*  
 Schlarb, C., 717, 814, 995, 1006A.  
 Schlatter, H., 1931.  
 Schlauf, J., 313.  
*Schlegel, O., see F. Ohr*  
 Schleich, C., 421.  
 Schleicher & Schull, 616.  
 Schleiden, M., 3.  
 Schleiermacher, A., 2487.  
 Schleimann, W., 189  
 Schlen, J., 2699.  
 Schlesinger, 2624  
*Schlesinger, F., see J. Gesell.*  
*Schlesinger, M., see H. Sherman.*  
 Schlesinger, O., 2637.  
 Schlesinger, W., 2695  
 Schlettwein, C., 2860  
*Schleu, see B. Szanyi*  
 Schleussner, 2892.  
 Schleussner, C., 2751  
 Schlichting, 2412.  
 Schliebe, G., 1291.  
*Schliebs, C., see L. Verstrael.*  
*Schliebs, G., see F. Beckmann.*  
 Schliebs, G., 1222, 1240, 1283.  
 Schlieper, A., 2446.  
 Schlinder, 2788  
 Schlippenbach, F. v., 1062, 1072  
*Schloemann, E., see K. Schaum.*  
 Schloesing, 1651, 2308, 2314, 2315  
 Schloesing, A., 812, 879, 932, 933, 1005.  
 Schloesing, T., 348, 676, 702, 2313.  
 Schloesing, T., and E. Laurent, 602.  
 Schloesing, T., and A. Muentz, 676.  
 Schloessberg, I., 957, 959, 1362.

- Schlosing, J., 714.  
 Schlosing, T., 710.  
 Schlosing-Grandeau, 735.  
 Schloss, A., 3031.  
 Schloss, E., 2599.  
 Schloss, J., 2705, 2709, 2710.  
 • Schlossberg, I., 1270.  
 Schlossberger, J., 3, 69, 326, 2403, 2447.  
 Schlossberger, J., and O. Doepping, 3.  
 Schlumberger, I., *see* M. Plessy.  
 Schlumberger, P., 2388.  
 Schlumberger, T., *see* E. Bronnert.  
 Schlumberger, T., 1697, 2576, 2625.  
 Schlundt, H., 1061, 1101, 2514.  
 Schlutius, J., 945.  
 Schlutting, 3058. •  
 Schmahl, J., 2706.  
 Schmalz, F., *see* A. Tournoux.  
 Schmalz, F., 2575, 2901.  
 Schmerber, C., *see* J. Schmerber.  
 Schmerber, C., *see* J. Arrault.  
 Schmerber, J., *see* J. Arrault.  
 Schmerber, J., 2545.  
 Schmerber, J., and C., 2667.  
 Schmerber, J., and L. Morane, 1790, 2753, 3019, 3020, 3041, 3042.  
 Schmerber, J., and C., and J. Arrault, 2672.  
 Schmerber, J., and C., and L. Morane, 2676.  
 Schmerber, O., 426.  
 Schmersahl, A., and J. Bouck, 1101, 1104.  
 Schmid, C., 2442.  
 Schmid, H., 40, 122, 1212.  
 Schmid, J., 2602.  
 Schmid, T., and J. Foltzer, 2602.  
 Schmid, W., 1061.  
 Schmidl, H., 1283.  
 Schmidlin, J., 2776.  
 Schmidt, *see* Witz.  
 Schmidt, 67.  
 Schmidt, and Hecker, 1641, 1646.  
 Schmidt, A., 227, 313, 730, 2522, 2659, 2762, 2993, 2998.  
 Schmidt, C., 4, 325, 476, 2246, 2480, 2575.  
 Schmidt, C., and Hecker, 493.  
 Schmidt, E., *see* F. Hecker.  
 Schmidt, E., *see* G. Lunge.  
 Schmidt, E., 1335, 2438, 2466, 2715, 2721.  
 Schmidt, E., and Hecker, 4.  
 Schmidt, F., 814.  
 Schmidt, G., 32, 2432, 2433, 2441, 2455, 2456.  
 Schmidt, H., 112, 313, 613, 2407, 2557, 2708, 2864, 2883, 2911.  
 Schmidt, J., 230, 2776.  
 Schmidt, J., and H. Lumpp, 964, 2337.  
 Schmidt, M. v., 243.  
 Schmidt, O., 302, 564, 1811, 2013, 2518, 2545, 2649, 2944.  
 Schmidt, O., and R. Bocker, 676, 717, 911.  
 Schmidt, O., and F. Struwe, 2560, 2561.  
 Schmidt, P., 2979.  
 Schmidt, P., and E. Price, 227.  
 Schmidt, R., *see* W. Appelius.  
 Schmidt, R., *see* Schultze-Tiemann.  
 Schmidt, R., *see* O. Bocker.  
 Schmidt, R., 454.  
 Schmidt, W., 937, 2510, 2512, 2555, 2680.  
 Schmidt-Nielsen, S., 313.  
 Schmidt & Co, T., 2710.  
 Schmidting, J., 2748.  
 Schmiedeberg, O., 2411.  
 Schmiedeberg, O., and E. Harnak, 2451.  
 Schmiedel, H., 2611.  
 Schmieder, P., 1078.  
 Schmitt, C., 2413, 2430.  
 Schmitt, C., and A. Cobenzl, 479.  
 Schmitt, C., and J. Rosenheck, 479.  
 Schmitt, J., 5, 2650.  
 Schmitt, T., 735.  
 Schmitz, F., 2561.  
 Schmitz, F., 724.  
 Schmitz, K., *see* J. Tafel.  
 Schmitz-Dumont, W., 1018.  
 Schmitz & Co, 2529, 2530, 2531, 2532, 2776.  
 Schmoeger and Lucks, 676, 935.  
 Schmolkka, H., 302.  
 Schnabel, 1086.  
 Schnarmann, H., 313.  
 Schnauffer, E., and H. Hupfeld, 2440.  
 Schnauss, 2801, 2821, 2824, 2921.  
 Schnauss, J., 2801, 2806, 2809, 2815, 2821, 2825, 2827, 2833, 2834, 2835, 2867, 2869, 2885, 2886, 2901, 2919.  
 Schneeberger, L., *see* H. Dreyfus.  
 Schneible, J., 2423.  
 Schneider, *see* Redtenbacher.  
 Schneider and Redtenbacher, 2801.  
 Schneider, A., 2483.  
 Schneider, B. v., 2386, 2508.  
 • Schneider, F., *see* P. Guye.  
 Schneider, F., 313.  
 Schneider, F., and G. Graf, 313.  
 Schneider, H., *see* H. Krause.  
 Schneider, H., 2776.  
 Schneider, J., *see* L. Naudin.  
 Schneider, J., *see* J. Ross.

- Schneider, J., 225, 227, 229, 1011, 1104, 1888, 1894, 2020.  
 Schneider, J., and G. Kunzl, 61.  
 Schneider, M., 2640.  
*Schneider, S., see M. Busch.*  
*Schneider, W., see F. Fischer.*  
 Schnell, F., G. Meyer, and E. Hartwich, 2767.  
*Schnelle, W., see F. Weld.*  
*Schniler, K., see K. Hantusch.*  
*Schniler, K., see Vereinigte Kunstseide-fabriken.*  
 Schniter, K., 2007.  
 Schnitzler, G., 2751, 2867.  
 Schobner, F., 1267.  
 Schoder, R., 2595.  
*Schoedler, see Petersen.*  
 Schöffler, L., 2693.  
 Schoeld, M., 926.  
*Shoemaker, R., see H. MacFarland.*  
*Schoen, M., see A. Fernbach.*  
 Schonbein, 413, 1571, 1597, 2412, 2922, 2924, 2925.  
 Schönbein and Böttger, 1646.  
*Schonbein, C., see Davy.*  
 Schonbein, C., 413, 676, 714, 718, 1018, 1061, 1574, 1575, 1580, 1581, 1582, 1849, 1850, 2788, 2789.  
 Schoenbein, F., 2660.  
*Schonberg, M., see H. Tyson.*  
 Schoene, A., and B. Tollens, 238.  
 Schone, C., 2455.  
 Schoneweg, H., 1635, 1790, 1870, 2960, 2964, 2967.  
*Schonfeld, see Bunsen.*  
 Schoenfelder, E., and E. Kehler, 2751.  
 Schoenfelder, P., and E. Kehler, 2856.  
 Schöngart, C., 453.  
*Schönherr, A., see F. Wiegolski.*  
 Schönherr, O., 852, 853, 857, 858, 859, 860, 861, 862, 863, 864, 884.  
 Schönherr, O., and J. Hessberger, 848, 853.  
 Schönn, 454.  
 Schönn, J., 2451, 2455.  
 Schönrock, O., 2433, 2441, 2456.  
 Schoep, A., 1771.  
 Schör, 2885.  
 Schoer, J., 2993.  
 Schörnes, L., 2872.  
*Schoetensack, see Hofmann & Schoetensack.*  
 Schöyn, A., 2437, 2438.  
 Schofield, C., 1360.  
 Schofield, I., 2860.  
*Scholefield, H., see R. Mallett.*  
 Scholl, B., 174.  
*Scholl, E., see O. Furth.*  
 Scholl, F., 2644.  
 Scholl, R., 128, 142.  
 Scholtz, M., 1051, 1508, 2776.  
 Scholtz, M., and L. Huber, 2776.  
 Scholzig, O., 2860.  
*Schonfeld, see R. Bunsen.*  
 Schonfeld, F., 1032.  
 Schonichen, F., 1048.  
 Schonlau, K., 321.  
 Schonlau, R., 2026.  
 Schonrock, O., 2433, 2441, 2456.  
 Schoorl, N., 2999.  
 Schoorl, N., and A. Regenbogen, 2425.  
 Schopper, I., 302.  
 Schopper, T., 2541.  
 Schorger, 249.  
 Schorger, A., 274, 354, 361.  
 Schorger, E., 368.  
*Schorlemmer, C., see H. Grimshaw.*  
 Schorlemmer, C., 2429, 2449, 2486.  
 Schorler, 243.  
 Schorr, R., 313.  
 Schotler, 2788.  
 Schott, F., 1061.  
 Schott, O., 1086, 1300.  
 Schotten, C., 2777.  
 Schowaneck, J., 2706.  
 Schrabner, A., 2861.  
*Schrader, J., see R. Penniman.*  
 Schrader, J., 3, 389, 392, 2446, 2979.  
 Schrader, R., 452.  
 Schramm, E., 2638, 2645, 2650.  
 Schramm, W., and A. Schweizer, 53.  
 Schrank, J., 2911.  
 Schrank, L., 2855, 2886.  
*Schranz, W., see P. Dobraner.*  
 Schratzenthaller, B., 1816.  
 Schraube, C., and E. Laudien, 2660.  
 Schrauf, A., 676, 1018.  
 Schreck, G., 2687.  
 Schreib, H., 450.  
*Schreiber, see Doutrelepoint.*  
 Schreiber, B., 1705.  
 Schreiber, C., 2912.  
 Schreiber, C., and I. Levenstein, 2745.  
 Schreiber, E., 302.  
 Schreiber, F., 767, 899.  
 Schreiber, G., 2850.  
 Schreiber, G., and J. Levinstein, 2909.  
 Schreinemakers, F., and D. van Prooije, 806.  
*Schreiner, see Celluloid-Fabrik.*  
 Schreiner, K., and K. Grunert, 229.  
 Schreiner, L., 228, 2638, 3066.  
*Schreiner & Seivers, see Celluloid*

- Fabrik.*  
 Schreiner & Sievers, 2668, 2676, 2689,  
 2712, 2720, 2721.  
 Schreiter, J., 2510.  
 Schreuder, C., 1006A.  
 Schreus, T., *see* C. Lütgenan.  
 Schreyer, F., 302, 660.  
 Schreyer, J., 664.  
 Schrieb, H., 313.  
 Schrimpf, A., 1719.  
 Schrimpf, A., *see* C. Schwalbe.  
 Schrimpf, A., 2293, 2295, 2298.  
 Schroder, H., 1006B, 1101, 3002.  
 Schroeder, 1170, 1171, 1584.  
 Schroeder, C., 2566.  
 Schroeder, C., L. Levi and A. Lasche,  
 2577, 3060.  
 Schroeder, H., *see* J. Brühl.  
 Schröder, H., 2471, 2500, 2507.  
 Schröder, I., 2433.  
 Schröder, J., 1094, 2419.  
 Schroeder, M., *see* Aktien Gesellschaft  
 für Zinkindustrie.  
 Schroeder, M., and W. Grillo, 1105.  
 Schroeder, M., *see* E. Hänsch.  
 Schroeder, M., 1112, 1115, 1162,  
 1164, 1167.  
 Schroeder, M., and E. Haenisch, 1086,  
 1161.  
 Schröder, R., 2896.  
 Schröder, W., *see* F. Berberich.  
 Schroeder-Grillo, 1010, 1111, 1161,  
 1162, 1165, 1166, 1173, 1174, 1191,  
 1192.  
 Schröter, F., *see* F. Semmler.  
 Schroeter, G., and W. Sondag, 2385.  
 Schroetter, *see* Redtenbacher.  
 Schroetter, A., 1018.  
 Schroetter, H., 2514.  
 Schroetter, H., and R. Weitzenböck,  
 2511.  
 Schrötter, H., 2474, 2514.  
 Schroetter, O. von, 2982, 2983.  
 Schryver, S., and C. Wood, 2412.  
 Schubardt, R., 1300.  
 Schubbert, W., 2702.  
 Schuberg, 2780.  
 Schubert, 1264.  
 Schubert, F., *see* W. Crombie.  
 Schubert, F., *see* H. Ping.  
 Schubert, H., 232.  
 Schubert, J., *see* M. Honig.  
 Schubert, S., *see* M. Hoenig.  
 Schubert, S., *see* W. Hoenig.  
 Schubert, S., 390, 422, 2453.  
 Schubert Bros., 2767.  
 Schuberth, R., 1101, 1131.  
 Schuchardt-Gorlitz, 51.  
 Schuck, B., *see* N. Caro.  
 Schuckher, W., 1627, 1820, 2650.  
 Schue, E., 2900.  
 Schückher & Co., 1810.  
 Schuehmacher, R., 302.  
 Schükarew, A., 2406, 2436.  
 Schull, *see* Schleicher.  
 Schülmers, V., 2679, 2716.  
 Schüpphaus, 1231.  
 Schüpphaus, G., 911, 914, 1235.  
 Schüpphaus, R., *see* H. Maxim.  
 Schüpphaus, R., 1422, 1425, 1456,  
 1638, 1722, 2384, 2479, 2492, 2551,  
 2658, 2665, 2667, 2671, 2672, 2679,  
 2727.  
 Schüpphaus, R., and M. White, 2033,  
 2034, 2035.  
 Schuepphaus, R., 2689.  
 Schuerer, A., 161, 164.  
 Schütt, F., 2433.  
 Schütz, E., 1073, 1078, 1345, 1346.  
 Schütz, H. von, 2426.  
 Schuetze, M., 231.  
 Schütze, P., 1275.  
 Schuetze, R., 325, 450.  
 Schütze, V., 2762.  
 Schützenberger, 141, 414.  
 Schuetzenberger and Naudin, 185.  
 Schützenberger and Riesler, 81.  
 Schuetzenberger, P., 4, 45, 167, 185,  
 202, 476, 1018, 2987.  
 Schuhfabrik Bonndorf Geb. Kriechle,  
 2607.  
 Schuhmacher, J., P. Reid and J. East-  
 wood, 2616.  
 Schuler, C., 2641.  
 Schuler, G., *see* Aktien-Gesellschaft der  
 Chem. Produkten-Fab. Pommerens-  
 dorf.  
 Schuler, G., *see* Chemische Produkten-  
 fabrik.  
 Schuler, J., *see* E. Abderhalden.  
 Schulhof, J., 1634, 2030, 2946, 2963.  
 Schulhof, L., *see* H. Goldschmidt.  
 Schulhof, T., and Q. Quin, 2982.  
 Schulmeister, 714.  
 Schulte, 2090.  
 Schulte, F., 313.  
 Schulte, W., 1411.  
 Schultgen, E., *see* A. Kumpfmüller.  
 Schultz, C., *see* C. Schultz-Sellack.  
 Schultz, E., 2727.  
 Schultz, F., 1337.  
 Schultz, G., 1871, 2390.  
 Schultz, G., and F. Gehre, 2967.  
 Schultz, H., 2709, 2710, 2988.  
 Schultze, 1620, 1633, 1811, 2969.  
 Schultze, E., 1600, 1669, 1635, 1808,  
 1809, 1869, 2050, 2051, 2927, 2928,  
 2946, 2975.

- Schultze, J., 2970.  
 Schultze, L., 2511.  
 Schultze, W., 460, 1002, 2473.  
 Schultze-Sellack, C., 1101, 1124, 1125, 2815, 2856, 2869.  
 Schultz-Tiemann, 2359.  
*Schulz, see Chem. Fabrik. Bettenhausen Marquart.*  
*Schulz, see Marquart.*  
 Schulz, 512, 815.  
 Schulz, A., 2463.  
 Schulz, F., 5, 326, 1349.  
 Schulz, H., 1018.  
 Schulz, W., *see C. Schwalbe.*  
 Schulze, *see Aronstein.*  
 Schulze, *see Carpenter.*  
 Schulze, 127, 3063.  
 Schulze, A., 2399.  
 Schulze, B., *see K. Weiske.*  
 Schulze, C., 227.  
 Schulze, C., and B. Tollens, 238.  
 Schulze, E., *see G. Lunge.*  
 Schulze, E., *see E. Steiger.*  
 Schulze, E., 14, 196, 238, 325, 326, 458.  
 Schulze, E., and Barnieri, 458.  
 Schulze, E., J. Barbieri and Eugster, 458.  
 Schulze, E., and N. Castoro, 237.  
 Schulze, E., and E. Eugster, 458.  
 Schulze, E., and Frankfort, 389.  
 Schulze, E., and M. Maercker, 458\*.  
 Schulze, E., and Seliwanoff, 458.  
 Schulze, E., and E. Steiger, 4, 238.  
 Schulze, F., 4, 196, 242, 391.  
 Schulze, H., 1061, 1101, 1130.  
 Schulze, L., 391, 397, 414, 415, 478.  
 Schulze-Berge, H., 2575.  
 Schulze-Berge, P., 1133.  
 Schulze-Hanneberg, 387.  
 Schulze-Tiemann, 1812.  
 Schulze-Tiemann, and R. Schmidt, 2313.  
 Schumacher, 2746.  
 Schumacher, J., 2869.  
 Schumacher, J., and G. Stade, 2861, 2862, 2919.  
 Schumacher, W., 1768, 2911.  
 Schuman, J., 448.  
 Schuman, O., 2500.  
 Schumann, A., 456.  
 Schumann, O., 1061, 2496, 2498, 2499, 2503, 2504, 2505, 2506, 2507, 2508, 2509.  
 Schumann, V., 2912.  
 Schunck, E., 530, 1857.  
 Schunert, F., 2425.  
 Schunk, E., 9, 534, 535, 1619, 1702.  
 Schuppli, O., *see W. Baragiola.*  
 Schupp, W., 2911.  
 Schuricht, E., 302.  
 Schurmann, E., and W. Bottcher, 1056.  
 Schuster, A., 676.  
 Schuttleworth, E., 2425.  
 Schutz, G., 313.  
 Schutz and Noack, 2855.  
 Schuyten, M., 676, 807, 1018.  
 Schwab, J., *see F. Hess.*  
 Schwab, J., *see T. Hess.*  
 Schwab, L., *see C. Weigelt.*  
 Schwab, L., 2413, 2974.  
 Schwab, M., 1369.  
 Schwab, M., and H. Greene & Sons, 1209, 1218.  
 Schwabacher, H., 2601.  
 Schwabe, 233.  
 Schwabe & Co., 233.  
 Schwabe & Co., *see Salis, Schwabe & Co.*  
 Schwabe, C., 2991.  
 Schwabe, S., & Co., and Boral, Robin and Kymer, 226.  
 Schwacke, 2470.  
 Schwager, J., 291, 313.  
 Schwalbe, 31, 112, 118, 559, 2202, 3054.  
 Schwalbe, C., 5, 17, 36, 53, 54, 78, 124, 128, 129, 134, 135, 137, 138, 139, 141, 142, 143, 144, 145, 146, 147, 158, 159, 162, 175, 220, 253, 271, 272, 277, 278, 286, 290, 302, 313, 330, 354, 355, 359, 360, 380, 381, 383, 511, 600, 604, 614, 615, 616, 660, 663, 664, 1813, 1884, 2421, 2628, 2650, 2652, 2991, 3000.  
 Schwalbe, C., and E. Becker, 249, 353, 364, 600, 660, 663.  
 Schwalbe, C., and H. Grim, 313.  
 Schwalbe, C., and W. Heimenz, 66.  
 Schwalbe, C., and M. Robinoff, 144, 602.  
 Schwalbe, C., and A. Schrimpf, 318.  
 Schwalbe, C., and W. Schulz, 147, 213, 355, 360.  
 Schwalbe, G., 664\*.  
 Schwamkrug, K., 2600.  
 Schwamm, C., 2612.  
 Schwamman, von, 2781.  
 Schwandner, 2788.  
 Schwanert, J., 2512.  
 Schwar, A., 2777.  
 Schwareman, A., 1780.  
 Schwartz, *see Paffgen.*  
 Schwartz, 323, 2743.  
 Schwartz, A., 2879.  
 Schwartz, Y., 2693, 2751, 2848, 2855,



- 2856, 2859, 2863, 2918, 2921, 2983.  
*Schwarz, see Valentiner.*  
*Schwarz, 2442.*  
*Schwarz, A., see C. Kelber.*  
*Schwarz, E., and A. Bauschicher, 743.*  
*Schwarz, H., see Zimmer.*  
*Schwarz, H., 322, 895, 1018, 1340, 1495, 1727, 1735, 2281, 2447, 2471, 2512, 2658, 2673, 2757, 2867.*  
*Schwarz, J., see K. Mueller.*  
*Schwarz, R., 113, 560.*  
*Schwarz, Y., 2581, 2906.*  
*Schwarzberg, H., 2762, 2763.*  
*Schwarzberg, H., and E. Noa, 2763.*  
*Schwarze, O., 2705.*  
*Schwarzenberg, 1018, 1250.*  
*Schwarzer, 470.*  
*Schwarzer, F., see C. Liebermann.*  
*Schwarzer, I., 2716.*  
*Schweinberg, A., 292.*  
*Schweitzer, A., and A. Hauff, 931.*  
*Schweitzer, A., and F. Hauff, 608, 1006B.*  
*Schweitzer, E., 2777.*  
*Schweitzer, J., 2601.*  
*Schweitzer, P., 1061.*  
*Schweizer, 64.*  
*Schweizer, A., see W. Schramm.*  
*Schweizer, A., 512.*  
*Schweizer, E., see S. Weidmann.*  
*Schweizer, E., 3, 69, 2153.*  
*Schweizerische Versuchsanstalt fur Textilindustrie, 3050.*  
*Schwemmer, J., 2564.*  
*Schwenkenbecher, 2461.*  
*Schwerdtfeger, M., 2832.*  
*Schwerin, B., see O. Piloty.*  
*Schwers, F., 2398, 2445, 2466.*  
*Schwieder, J., 2740, 2742.*  
*Schwier, K., 2813.*  
*Schwimmer, S., 2394, 2566, 3024.*  
*Schwob, L., and G. Dilette, 2690.*  
*Schwob, L., and G. Herbert-Dilette, 2716, 2717.*  
*Sciaccia, H., see L. Francesconi.*  
*Scialoja, G., 929, 933, 1006B.*  
*Sciamengo and Pastorne, 2679.*  
*Sciamengo, see Itala-Film Ing. Sciamengo.*  
*Sciamengo, C., 2683, 2751, 2899.*  
*Scichilone, S. v., 1018.*  
*Scieauca, N., see L. Francesconi.*  
*Sclavo, A., and B. Gosio, 419.*  
*Scoffern, J., 70, 78.*  
*Scoffern, J., and G. Tidcombe, 78.*  
*Scolik, C., see F. Mallmann.*  
*Scotellari, 2809, 2810, 2819, 2870.*  
*Scotellari, D., see T. Rendle.*  
*Scotellari, D., 2751, 2905.*  
*Scotland, W., see G. Henderson.*  
*Scott, see Kilburn-Scott.*  
*Scott, see E. Kilburn-Scott.*  
*Scott, see Taylor.*  
*Scott, 1524, 2998.*  
*Scott, Archer F., see F. Archer.*  
*Scott and Henderson, 2998.*  
*Scott and Tulloch, 2992.*  
*Scott, A., see C. Arnold.*  
*Scott, A., see H. James.*  
*Scott, A., 676, 692, 1018.*  
*Scott, A., and T. Henderson, 2994.*  
*Scott, A., and A. Meyer, 1033, 1086.*  
*Scott, B., 2715.*  
*Scott, E., see G. Taylor.*  
*Scott, E., 227, 673, 676, 690, 850, 851, 861, 869, 2994.*  
*Scott, E. Kilburn, 849, 1005.*  
*Scott, E., and G. Hager, 850.*  
*Scott, E., and F. Howles, 709, 850, 851.*  
*Scott, F., and A. Scymour, 2730.*  
*Scott, G., 2777.*  
*Scott, G., and Son, see H. Pooley.*  
*Scott, J., see J. Wood.*  
*Scott, J., 313, 1018, 1033, 1369.*  
*Scott, N., 2751.*  
*Scott, R., see A. Nasson.*  
*Scott, R., 2979.*  
*Scott, W., see F. Bowman.*  
*Scott, W., 709, 1617, 1704, 2815.*  
*Scovill Manufacturing Co., and R. Sperry, 2979.*  
*Screeton, W., see W. Watkins.*  
*Scudder, H., see Mulliken.*  
*Szczepanik, J., 2879.*  
*Sdzitowecy, W., see W. Ipatjew.*  
*Seaber, W., see M. Salamon.*  
*Seaborne, A., 2896.*  
*Seabury, F., 2740.*  
*Sealey, G., and J. Lee, 2919.*  
*Seaman, A., 2727.*  
*Seaman, W., 1133.*  
*Seaman Waste Wood Chem. Co., 664.*  
*Seary, J., see W. Carroll.*  
*Seauwe, A., see G. Bauge.*  
*Sebaldi, F., see A. Hantzsch.*  
*Sebastian, V., 2425.*  
*Sebelien, J., 1046.*  
*Sebert, H., 1793.*  
*Sebillot, A., 1075, 1076, 1031, 1108, 1291, 1295, 1302.*  
*Sebillot, A., and G. Dubois, 1076.*  
*Sebillot, A., and L. Mauclair, 1119, 1204.*  
*Sebrikoff, L., see C. Guye.*  
*Sebrom, 2923.*  
*Secchi, P., 2912.*  
*Seck, W., see T. Stack.*

- Seckendorff, 1364.  
 Seckendorff, R. von, 1011.  
 Sedeyen, A., 2634.  
 Sedgfield, R., 2845.  
 Sedgwick, A., 1018, 1033.  
 Sedlaczek, 78.  
 Seeck, M., 1207, 1209.  
 Seel, P., 38, 3032, 3049.  
 Seelau, F., 2694.  
 Seeley, A., *see* G. Kershaw.  
 Seeley, C., 1854, 2663, 2827.  
 Seelig, E., 2537.  
 Seelos, H., 450.  
 Seely, 2808.  
 Seeman, R., 78.  
 Seemann, B., 2717.  
 Seltou-Jones, H., 3066.  
 Segale, M., 2411.  
 Segall, H., 2683.  
 Seger, 1241, 1242.  
 Segerfeld, *see* P. Klason.  
 Segerfeld, B., 313.  
 Segerfelt, 213.  
 Segerfelt, B., *see* P. Klason.  
 Seguiet, A., 1571, 1574, 1586.  
 Seguiet, A., and Clerget, 1574.  
 Seguiet, A., A. Morin, and M. Chev-  
 reul, 1600.  
 Segundo, *see* E. Carsten de Segundo.  
 Segundo, E. de, *see* P. Minck.  
 Segundo, E. de, 573, 576, 577, 578.  
 Seguriet, 1887.  
 Seguy, G., 676.  
 Seher, A., 2401, 2581.  
 Schr, A., 2387.  
 Seiber, R., *see* Heuser, F.  
 Seiberling, F., 2727.  
 Seibert, C., *see* F. Kreisel.  
 Seibert, F., *see* G. Burell.  
 Seibert, F., and J. Minor, 224.  
 Seidel, H., *see* F. Ulzer.  
 Seidel, H., 280, 282, 283, 313, 3068.  
 Seidel, H., and L. Hanak, 280, 282,  
 313.  
 Seidel, H., and J. Pollak, 313.  
 Seidell, A., *see* F. Cameron.  
 Seidell, A., and P. Meserve, 1099.  
 Seifert, 413.  
 Seifert, R., 2526.  
 Seifert, W., 2486.  
 Seiler, E., *see* K. Hofmann.  
 Seithen, A., 2610.  
 Seitz, C., 1011.  
 Seitz, V., 2586, 2763.  
 Seitz, W., *see* R. Abegg.  
 Seki, K., 2589.  
 Selden Co., and H. Gibbs, 2995, 3024.  
 Seleznew, W., 1018.  
 Self, P., 676.  
 Self-Developing Plate Co., *see* T. Bolas.  
 Self-Developing Plate Co., 2751.  
 Self-Developing Plate Co., and T.  
 Bolas, 2671, 2676, 2693, 2727.  
 Selig Polyscope Co., 2896.  
 Seligmann, R., and P. Williams, 807,  
 950, 2999.  
 Selivanoff, F., 419.  
 Seliwanoff, *see* F. Schulze.  
 Seliwanoff, 243.  
 Seliwanoff, T., 197, 238, 242, 264.  
 Selkirk, A., 292.  
 Sell, *see* Liebig.  
 Sell, E., 715, 2476.  
 Sell, E., and C. Windisch, 2477.  
 Sella, A., *see* G. de Rossi.  
 Sella, J., *see* A. Lacroix.  
 Sellack, *see* C. Schultz-Sellack.  
 Selle, G., 2751, 2824, 2875, 2882.  
 Selleger, E., 61.  
 Sellergen, G., 302.  
 Sellers, C., 2818, 2827, 2886.  
 Sellers, G., 329.  
 Sellers, J., 2801.  
 Selmi, F., *see* A. Sobrero.  
 Selmi, F., 1018, 1334, 1340.  
 Selmi, F., and G. Missaghi, 1018.  
 Selmons, F., 1061.  
 Selwig and Lange, 534, 1406, 1977,  
 2048, 2053, 2060, 2061, 2065, 2079,  
 2080, 2126, 2274.  
 Selwig, J., 1956.  
 Selwig, J., and B. Lange, 1956, 1957,  
 1958, 1959, 1960, 1962, 1963, 1964,  
 1965.  
 Selzer, L., 2727.  
 Sem, M., 927.  
 Sem, M., and Det Norske Aktiesel-  
 skab for Elektrokemisk Industrie,  
 10064.  
 Sembritzki, W., 302, 313.  
 Semenoff, A., 718, 3064.  
 Semet Solvay Co., *see* L. Jones.  
 Semmler, F., *see* F. Tiemann.  
 Semmler, F., 2514, 2522, 2523.  
 Semmler, F., and I. Rosenberg, 2516.  
 Semmler, F., F. Risse and F. Schroter,  
 2394, 2537.  
 Semper and Michaels, 725, 726.  
 Semplowski, A., 460.  
 Semprun, E., *see* R. Fortun.  
 Sen, B., and B. Dey, 676, 964.  
 Sen, J., *see* R. Datta.  
 Sen, S., *see* B. Dut.  
 Senderens, *see* E. Filhol.  
 Senderens, J., *see* P. Sabatier.  
 Senderens, J., 1018, 2388, 2395, 2396,  
 2419, 2437, 2466.  
 Senderens, J., and J. Aboulene, 2394.

- 2487, 2509, 2548.  
 Senebier, 391.  
 Senes, C., and L. Ginies, 848.  
 Senft, E., 243, 264, 1694.  
 Seng, W., and A. Steyrey, 2356.  
 Senior, A., 714.  
*Senior, J., see L. Ashe.*  
 Sentek, 2815.  
 Senus, A. van, 348.  
*Sequard, see Brown-Sequard.*  
 Sergen, J., and J. Nowak, 676.  
 Serpek, 918, 922, 924.  
 Serpek, O., 689, 900, 919, 1006B.  
*Serra, E., see G. Oddo.*  
 Serre, 2788.  
*Serret, see Soc. Anon. pour l'Etude Ind. de la Soie Serret.*  
 Serret, 2993.  
 Serret, A., 944.  
 Sershall, G., 2751, 2864, 2908, 2917.  
 Sershall, G., and Kirk, 2908.  
 Sershall, G., and H. Kirk, 2917.  
 Sershall, G., and J. Kirk, 2751.  
 Servais, L., 2443.  
 Serve, L., 2923.  
 Sestini, F., 245, 436, 944, 1018, 1061.  
 Sestini, Q., 2555.  
*Seta, see Cines-Seta.*  
 Setlik, B., 1330, 2642.  
 Setlik and R. Parker, 1331.  
 Severen, 2634.  
 Severen, M., 2644.  
*Severen, W., see W. Thomson.*  
 Sevez, L., 1011.  
 Seybel, E., and H. Wikander, 1335.  
*Seybel & Co., see Wagenmann.*  
 Seyberlich, A., and A. Traupedach, 477, 478, 947.  
 Seydel, A., 2641.  
*Seydel, S., see A. Koch.*  
 Seydel, S., and L. Wichers, 736.  
*Seyewetz, see Lumière.*  
*Seyewetz, A., see A. Lumière.*  
 Seyewetz and Chicandard, 2860.  
 Seyewetz, A., and P. Trawitz, 1294.  
 Seyfert, F., 390, 410.  
*Seyfert, H., see H. Dorr.*  
*Seyfert, O., see G. Dietrich.*  
 Seyferth, A., 1063.  
 Seyferth, C., 2067.  
*Seyler, see Hoppe-Seyler.*  
*Seyler, see F. Hoppe-Seyler.*  
*Seymour, A., see F. Scott.*  
 Seymour, F., 2738.  
 Seymour, J., 2511.  
 Sexton, A., 2892.  
 Shackleton, E., 701.  
 Shadbolt, 2820.  
 Shadbolt, G., 2817, 2826, 2827, 2830, 2885, 2914.  
 Shadbolt, R., 2812.  
 Shaffner, T., 2032, 2979, 2980.  
 Shanks, J., 1011, 1300.  
 Shannon, G., 2740.  
*Shardlow & Co., A., see W. Moore.*  
 Sharp, A., 1952.  
*Sharp, F., see G. Walker.*  
 Sharp, H., 947.  
 Sharp, M., 225, 226.  
 Sharp, W., 2895.  
 Sharpe, D., 302.  
 Shartle, C., 302.  
*Shaw, see Pickard.*  
 Shaw, A., 2458.  
 Shaw, C., 1018, 2612, 2660.  
 Shaw, C., and D. Sandemann, 2746.  
 Shawinigan Water & Power Co., 2396.  
*Shea, see L. O'Shea.*  
*Shearer, A., see W. Giles.*  
 Shearer, G., 2730.  
 Shearer, I., 2715, 2716.  
 Shedlock, J., 956.  
*Shee, see D'Alton-Shee.*  
 Sheldon, C., 2703.  
*Sheldon, F., see S. Wheatley.*  
 Sheldon, N., 947.  
 Shelling, E., 3066.  
 Shelvin and Small, 314.  
 Shenstone, 1361.  
 Shenton, W., 2862.  
*Sheolin, G., see J. Barker.*  
 Shephard, 2873.  
*Shepherd, see E. Longer-Shepherd.*  
*Shepherd, see Sanger-Shepherd.*  
 Shepherd, E., 2911.  
 Shepherd, J., 2727.  
*Shepherd, S., see W. Wyld.*  
*Shepherd, W. S., see W. Wyld.*  
*Sheppard, see Mees.*  
 Sheppard, S., 387, 2879.  
 Sheppee, F., and M. Shipley, 2562.  
*Sheppherd, E., see W. Newton.*  
 Sherlock, C., 1928.  
 Sherman, H., 474.  
 Sherman, H., and J. Baker, 474.  
 Sherman, H., and P. Punnett, 474.  
 Sherman, H., and M. Schlesinger, 474.  
 Sherman, H., and J. Walker, 474, 484.  
 Sherman, H., F. Walker and M. Caldwell, 417, 484.  
 Sherman, H., and J. Winters, 2551.  
 Sherman, O., 1591.  
 Sherman, R., 451.  
 Sherwood, L., 800.  
 Sherwood, R., 329.  
 Sherzer, W., 1018.

- Shestakoff, P., see K. Tarasoff.*  
*Shick, C., and Aktien Gesellschaft, f. Stickstoffdunger, 1006A.*  
*Shields, see W. Ramsay.*  
*Shields, J., see Mond.*  
*Shields, J., see L. Mond.*  
*Shields, J., see W. Ramsay.*  
*Shields, J., 1090, 1091, 1109, 2503.*  
*Shiga, K., 1394.*  
*Shigley, C., see S. Paxton.*  
*Shigley, C., 2738.*  
*Shigley, C., and S. Paxton, 2738.*  
*Shimidzu, T., see E. Divers*  
*Shimoyama, Y., 390. \**  
*Shinn, J., 2791.*  
*Shiple, M., see F. Sheppee.*  
*Shipman, M., 2706.*  
*Shipsey, K., and R. Werner, 2308.*  
*Shirasawa, H., see A. Tschirch.*  
*Shirley, A., and E. Horst, 2740.*  
*Shoeld, M., 688, 921, 923.*  
*Shoemaker, R., see H. MacFarland.*  
*Shon, M., see A. Fernbach.*  
*Shojo, T., 2995.*  
*Sholly, B. von, see H. Pettibone.*  
*Shorrock, J., 302.*  
*Shorrocks, H., 2897.*  
*Short, W., 2727.*  
*Shoudy, W., see F. Welles.*  
*Shrager, C., and R. Lance, 2625, 2630, 2752, 3080. \**  
*Shreve, R., see L. Clarke.*  
*Shrewsbury, H., 2570.*  
*Shuey, P., 807.*  
*Shukoff, A. 2524.*  
*Shuman, F., 227, 3066*  
*Shutt, F., and L. Wright, 808.*  
*Shuttleworth, J., 2746.*  
*Sibbald, E., 2704.*  
*Siblet, L., 2590.*  
*Sichel, F., see E. Stern.*  
*Sichling, H., 2604.*  
*Sidebotham, J., 2835.*  
*Siderosthen Paint Syndicate, 2566.*  
*Sidersky, D., 1316, 2419.*  
*Sidgwick, N., and B. Lambert, 2396.*  
*Sidler, E., see R. Payelle.*  
*Sidney, A., 2794.*  
*Sieber and Walther, 249.*  
*Sieber, N., see M. Nenki.*  
*Sieber, R., 286.*  
*Sieber, R., and L. Walter, 274, 364.*  
*Siebert, G., 1366, 1370.*  
*Siebert, W., 698, 848.*  
*Siebner, 1006B.*  
*Siebner, E., 314.*  
*Siedentopf, O., 2618, 2620, 2979.*  
*Siegerer Dynamitfabrik, see Aktien Gesellschaft Siegerer Dynamitfabrik.*  
*Siegfeld, M., 2461, 2482.*  
*Siegle, E., 197.*  
*Siegmund, H., and P. Inhasz, 676.*  
*Sieker, F., 2791.*  
*Siemens, C., 426.*  
*Siemens, O., 1300.*  
*Siemens, W., v., 426, 1633.*  
*Siemens & Co., 957.*  
*Siemens & Halske, 334, 426, 689, 701, 895, 943, 1203, 2596.*  
*Siemens-Schuckert-Werke, 3062.*  
*Siermann, E., 2406, 2416.*  
*Siersch, A., see E. Linnemann.*  
*Siersch, A., 2429, 2438. \**  
*Sievers, see Celluloid-Fabrik.*  
*Sievers, see Schreiner.*  
*Sievers, see Schreiner & Sievers.*  
*Sievert, 735.*  
*Sieverts, A., and E. Bergner, 1096.*  
*Siewert, 243.*  
*Sigmond, E. v., 468.*  
*Sijournal, see Marcillac.*  
*Silber, P., see G. Ciamician.*  
*Silberberger, R., 1326.*  
*Silberman, H., 2597, 2911.*  
*Silberman, J., 2447.*  
*Silbermann, see P. Favre.*  
*Silbermann, 2458*  
*Silbermann, E., see Z. Wolff.*  
*Silbermann, E., J. Silbermann and J. Moscovitz, 2683.*  
*Silbermann, H., 2622, 2637.*  
*Silbermann, J., see F. Favre.*  
*Silbermann, J., see W. Fraenkel.*  
*Silbermann, J., see E. Silbermann.*  
*Silbermann, J., see Z. Wolff.*  
*Silberrad, 2364.*  
*Silberrad and Farmer, 1707, 1716.*  
*Silberrad, O., 328, 568, 849, 1006B, 1871, 1931, 2344, 2394, 2416, 2540, 2602, 2645, 2946, 2960, 2963, 2966, 2992, 3047.*  
*Silberrad, O., and R. Farmer, 1707, 1708, 1716, 1718, 2366.*  
*Silberrad, O., H. Philips and H. Meriman, 2953.*  
*Silica Syndicate, 1361.*  
*Silkin Kunstseide Industrie Gesellschaft, 3077. \**  
*Silliman, B., 1584.*  
*Silsby, R., 2861.*  
*Silva, A., da, 2965.*  
*Silva, R., see C. Friedel.*  
*Silva, R., 514, 2449, 2509.*  
*Silver, P., see G. Ciamician.*  
*Silvermann, L., 2953.*  
*Silverwood, A., and J. Taylor, 234, 3066. \**  
*Silvestri, O., 676, 1018.*

- Silvy, C., 2886.  
 Simeons, F., and J. Mainzer, 2587, 2694.  
 Simes, W., 2512.  
 Simo, 2829.  
 Simon, 345.  
 Simon, A., 1275.  
 Simon, E., 226, 3066.  
 Simon, J., 1205.  
 Simon, J., and Dürkheim, 2676.  
 Simon, L., *see* C. Mauguin.  
 Simon, L., 2456.  
 Simon, O., and H. Lohrisch, 387.  
 Simon-Carves Bye-Product Oven Co., *see* J. Brown.  
 Simon-Thomas, J., 1703, 1704, 2345, 2468.  
 Simonet, L., 2574, 2605.  
 Simonin, H., 302, 946. \*  
 Simonini, A., 2596.  
 Simons, F., 227.  
 Simons, J., 2728.  
 Simons, J., and S. Smith, 302.  
 Simons, P., *see* H. Liesegang.  
 Simons, W., 1072, 2531.  
 Simonsen, E., 137, 281, 612, 660, 1006B, 2415, 2422.  
 Simonson, 314.  
 Simonson, E., 198, 200, 205.  
 Simoulin, P., 2694.  
 Simpson, 2795, 2813, 2824, 2886.  
 Simpson, A., 2575.  
 Simpson, E., 2600.  
 Simpson, G., 1599, 2003, 2802, 2807, 2814, 2818, 2820, 2829, 2836, 2849, 2850, 2851, 2855, 2857.  
 Simpson, H., and G. Mackirdy, 276. \*  
 Simpson, J., *see* E. Parnell.  
 Simpson, J., and E. Parnell, 1085.  
 Simpson, L., 853.  
 Simpson, M., 2428.  
 Simpson, W., *see* I. Baggs.  
 Sims, H., 1096.  
 Sims, J., 2788.  
 Sims, T., 1061, 2827, 2875, 2907.  
 Sims, W., *see* W. Holt.  
 Sims-Dudley, 2932.  
 Sincay, *see* L. De Encay.  
 Sinclair, G., 930, 936.  
 Sinclair, G., 302.  
 Sindall and Bacon, 40, 808.  
 Sindall, 301, 515.  
 Sindall and Heckford, 293.  
 Sindall, R., 302, 314.  
 Sindall, R., and W. Bacon, 791.  
 Sinding-Larsen, A., 701, 918, 923.  
 Sinding-Larsen, A., and O. Storm, 917, 1004.  
 Sinibaldi, J., 2415.  
 Singer, 242, 2838.  
 Singer, H., 2727.  
 Singer, M., 197, 242, 262.  
 Singer, L., *see* Chem. Ind. Aktien Gesellschaft.  
 Singer, M., 302.  
 Singer, S., 2844, 2846, 2847.  
 Singewald, J., and B. Miller, 726.  
 Singleton, J., and S. White, 2900.  
 Sinton, W., 2601.  
 Sirk, M., *see* Z. Skraup.  
 Sironi, H., 2899.  
 Sisler, Y., 253f.  
 Sisley, 115.  
 Sisley, P., *see* L. Vignon.  
 Sisley, P., 114.  
 Sisson, 2821.  
 Sisson, J., 2828.  
 Siwy, P., 2986.  
 Sjöberg, M., 1843.  
 Sjöberg, R., 1785, 1856, 2536, 2974.  
 Sjölema, B., 736.  
 Sjöstedt, E., 1043.  
 Sjöström, V., *see* B. Leu.  
 Skaller, O., 3049.  
 Skassa, A., 2415.  
 Skerrett, 676.  
 Skerrett, R., 691, 901.  
 Skey, W., 1347.  
 Skindfabriken Finicum, K. Bendixen, P. Bendixen & Co., 2602.  
 Skinner, L., 1009.  
 Skioldebrand, C., *see* E. Heuser.  
 Skirrow, F., 2406.  
 Skita, A., 2524.  
 Skitt, J., *see* G. Drum.  
 Skoglund, J., 751, 840, 985, 1278, 1388, 1392, 1444, 1637, 1790, 2965.  
 Skrabal, A., and A. Sperk, 2498.  
 Skraup, 186.  
 Skraup, Z., 26, 182, 390, 2514, 2988.  
 Skraup, Z., F. Geinsperger, E. v. Knaff-Lenz, F. Menter and H. Sirk, 414.  
 Skraup, Z., and H. Hamburger, 414.  
 Skraup, Z., and J. Koenig, 26, 182, 186, 189.  
 Skraup, Z., and R. Kremann, 182, 183.  
 Slack, E., 302.  
 Slack, H., 2564.  
 Slade, B., 2718, 2683.  
 Slade, R., and G. Higson, 676, 936.  
 Slight, L., 3080.  
 Slama, F., *see* M. Scharff.  
 Slater, J., 2907.  
 Slater, R., *see* C. Irvine.  
 Slavicek, V., 2416, 2555.

- Slawinski, K., 2524.  
 Sleddon, 2834.  
 Sleddon and Bolton, 2828.  
 Slingsby, 2190.  
 Sloan, J., 2702.  
 Slocum, 688.  
 Slocum, F., 685, 899, 921.  
 Smärt, B., 302, 2422.  
 Small, *see* Shelvin.  
 Small, F., 314.  
 Small, J., and C. Higgins, 1931.  
 Smalley, W., *see* Sandell Films and Plates, Ltd. ••  
 Smalley, W., 2892.  
 Smart, B., *see* R. Robertson.  
 Smart, B., 314, 1881, 2325, 2326, 2337.  
 Smart, B., and P. Pecover, 1881.  
 Smew, V., 1930.  
 Smidt, W., 2705, 2709.  
 Smiles, S., 1018.  
 Sminov, S., 2491.  
 Smit, H., 2569.  
 Smit, W., 2789.  
 Smith, *see* Berl.  
 Smith, *see* Francis.  
 Smith, *see* C. Hopkins.  
 Smith, *see* Maxted.  
 Smith, 99, 1019, 2334, 2897.  
 Smith & Co., *see* J. Bickford.  
 Smith and Grasser, 2688.  
 Smith & MacLaurin, Ltd., 2601.  
 Smith, A., *see* C. Mabery.  
 Smith, A., 269, 302, 1025, 1061, 1365, 1393, 2461, 2477, 2598, 2685, 2729, 2777, 2844.  
 Smith, A., and C. Carson, 1035.  
 Smith, A., and W. Holmes, 1035.  
 Smith, A., and J. Milliken, 3066.  
 Smith, A., and K. Orton, 2988.  
 Smith, A., W. Holmes and E. Hall, 1019, 1035.  
 Smith, A., and H. and J. Roberts, 2727.  
 Smith, C., *see* C. Cross.  
 Smith, C., 168, 2660, 2680, 2685, 2712, 2746.  
 Smith, D., *see* B. Brooks.  
 Smith, D., 2592, 2706, 2720.  
 Smith, E., *see* T. Clarke.  
 Smith, E., 348, 2699, 2727, 2818.  
 Smith, F., 2723, 2911, 2982, 3081.  
 Smith, F., and C. MacIntosh & Co., 3078.  
 Smith, G., *see* J. Bickford.  
 Smith, G., and J. Stieglitz, 2716.  
 Smith, H., *see* T. Bayliss.  
 Smith, H., *see* H. Creighton.  
 Smith, H., *see* King's Norton Metal Co.  
 Smith, H., *see* N. Leonard.  
 Smith, H., 1248, 2508, 2593, 2849, 2867, 2919.  
 Smith, H., and H. Brownsdon, 2982.  
 Smith, H., and N. Stafford, 2884.  
 Smith, J., *see* G. Lunge.  
 Smith, J., *see* E. Russell.  
 Smith, J., *see* E. Teschemacher.  
 Smith, J., 676, 2562, 2611, 2625, 2704, 2755, 2827, 2864, 2880, 2882, 2884, 2894, 2921. •  
 Smith, J., and W. Merckens, 2751, 2884, 3059. •  
 Smith, J., and J. Savage, 1011, 1360, 1391.  
 Smith, J., and N. Stafford, 2882.  
 Smith, J., H. Mitchell, W. Askham and H. Hey, 2556.  
 Smith, K., 2701.  
 Smith, L., 2553, 2882, 2894, 3024.  
 Smith, M., *see* E. Chapman.  
 Smith, N., *see* E. Russell.  
 Smith, N., 944.  
 Smith, O., *see* C. Francis.  
 Smith, P., 1010, 1027, 1028, 1029, 1062, 2604.  
 Smith, R., 714, 2586, 2703, 2712.  
 Smith, R., and G. Drum, 3066.  
 Smith, S., *see* J. Simons.  
 Smith, S., 1076.  
 Smith, S., and T. Harden, 2407.  
 Smith, T., *see* E. Maxted.  
 Smith, T., 1119. •  
 Smith, V., 2667, 2739.  
 Smith, W., *see* E. Berl.  
 Smith, W., 302, 710, 711, 721, 1010, 1019, 1038, 2609, 2707, 2727, 3048, 3049.  
 Smith, W., and W. Elmore, 710.  
 Smith, W., and W. Hart, 1061.  
 Smith, W., and J. Isgrig, 2746.  
 Smith, W., and J. Larkin, 2621.  
 Smithells, E., 2841, 2842.  
 Smits, A., 1036.  
 Smokeless Powder, Co., 2051, 2052, 2954.  
 Smolianoff, S., 2386.  
 Smolka, A., 1868. •  
 Smoot, A., 1042.  
 Smythe, II, *see* F. Myers.  
 Smythe, J., and W. Wardlow, 1037.  
 Snell, C., 77. •  
 Snell, E., 461. •  
 Snell, W., 459.  
 Snelling, W., 930, 1828, 1829, 1836, 2588, 2995.  
 Snelling, W., and W. Laws, 1828.  
 Snelling, W., and G. Storm, 972, 2986.

- Snow, B., see E. Nichols.*  
 Snowden & Co., Ltd., 3014, 3042, 3057.  
 Snyder, F., 936.  
 Snyder, J., 2689, 2723.  
 Soar, H., 2577.  
 Söbbe, O. v., 2534.  
 Sobrero, A., 1629, 1849, 1863.  
 Sobrero, A., and F. Selmi, 1019.  
 Sociedad Espanol de Seda Viscose, 3073.  
 Sociedad Iberica del Azoe, 1005.  
 Societa Anonima L. Vogel, 743.  
 Societa "Bogatir," 2400.  
 Soc. des Acieries & Forges de Firminy, 2396, 2503, 2504, 2995, 2996.  
 Societe en actions "Promethee," 2948.  
 Soc. l'Air Liquide (Soc. Anon. pour l'Etude et l'Exploitation des Proc. G. Claude, 676, 687, 693, 704, 2555, 2556, 2650).  
 Societe Anonyme L'Air Liquide, 695.  
 Soc. Anon. des Acieries and Forges de Firminy, 2396.  
 Societe Anon. Alliance Industrielle, 430.  
 Soc. Anon. Artificielle Francaise, 3072.  
 Societe Anonyme Blanchiment, Teinture et Impression, 226.  
 Societe Anonyme Borrás, *see A. Borrás.*  
 Soc. Anon. Le Camphre, 302, 2752, 3004, 3032, 3042.  
 Societe Anonyme le Carbone, 2598, 2686, 2687, 2718.  
 Soc. Anon. La Cellophane, 2687, 2897.  
 Soc. anon. de Cellulose-cotton pour Poudres blanches de Guerre et Celluloïd, 2894.  
 Societe anon. Cellulose Planchon, 2320, 2625, 2644, 3051, 3057, 3069.  
 Soc. Anon. Conidelon, 1111, 1121.  
 Soc. anon. pour la Construction des Appareils Savalle, 2415.  
 Soc. anon. La Cornalithe, 2763.  
 Societe Anonyme Le Corrioide, 2606.  
 Societe anonyme "Le Crinoïd," 75, 77, 86, 90, 2644, 2648, 2654.  
 Societe Anon. de Cuirs et Courroies D'Audenarde, 2601.  
 Societe anon. de Droogenbosch, 2147.  
 Soc. Anon. de Enduits Archambault, 957.  
 Societe Anonyme des Etablissements Eycken et Leroy, 8003, 3004.  
 Societe Anon. des Etablissements Hutchinson, 3047.  
 Soc. Anon. Les Etablissements Poulenc Freres and F. Billon, 2559, 2785.  
 Soc. Anon. d'Etudes Electrochimiques, 698.  
 Soc. Anon. pour l'Etude Ind. de la Soie Serret, 1899, 2625, 2626, 2639, 2648.  
 Soc. Anon. pour l'Etude et l'Exploit. des proc. G. Claude, 688.  
 Soc. Anon. pour l'Etude et l'Exploit. des Proc., *see L'Air Liquide.*  
 Soc. Anon. d'Exploitation des Proc. Begigneul and E. Berger, 1031.  
 Societe Anon. Pour l'Exploitation des Proc. Westinghouse Leblance, 3062.  
 Soc. Anon. des Explosifs de Clemont Muller & Co., 2981.  
 Societe Anonyme D'Explosifs et de produits Chimiques, 3011.  
 Soc. Anon. de Fabrication de dynamite, 2004.  
 Soc. anon. pour la Fab. des Pates a Papier de lin et succedanes, 302.  
 Soc. Anon. pour la Fabrication Soie de Chardonnnet, 2556, 2559, 3067, 3069.  
 Soc. Anon. Fabriques Baloise de Produits Chim., 2518.  
 Societe anon. Fabrique de Soie Artificielle de Tubize, 2635.  
 Soc. Anon. du Filtre Chamberlain Systeme Pasteur, 2559, 2785.  
 Soc. Anon. Francaise de Chimie Industrielle, 2896.  
 Societe anon. Francaise "La Soie Artificielle," 74, 79.  
 Soc. Anon. France-Kodak, 3069.  
 Soc. Anon. L'Helice Integrale, Ancienes Etablissements L. Chauviere, 2584, 2585.  
 Soc. Anon. Ing. L. Vogel, 1233, 1288, 1290.  
 Soc. Anon. Internazionale per i Cliches in Celluloide Bacigalupi, 2746.  
 Soc. anon. Metallurgique "Proc. de Laval," 1027, 1028, 1033.  
 Soc. anon. La Metallurgie Nouvelle, 1203.  
 Soc. Anon. d. Mines des Bormettes and A. Lotti, 1081.  
 Soc. anon. "Mirabet," 302.  
 Soc. anon. le Nitrogene, *see also Soc. le Nitrogene.*  
 Soc. anon. le Nitrogene, 673, 700, 720, 848, 1004, 1005, 1229.  
 Societe anon. Nouvelle l'Oyonnithe, 2391, 2588, 2607, 2676, 2689, 2699.

- 3043, 3044.  
 Soc. anon. Nouvelle L'Oyonnithe and H. du Boistesselin, 2899, 2918.  
 Societe anonyme "Origo," 213.  
 Soc. anon. L'Oyonnaxienne, 2542, 2719, 2754, 2755, 2765, 3009.  
 Soc. anon. L'Oyonnithe, 2536, 2712.  
 Soc. Anon. des Pellicules Francaises, 2752, 2893.  
 Soc. Anon. Petitcollin, 2689, 2690, 2691, 2717, 2748, 2911.  
 Soc. Anon. des Planchon, 2634.  
 Societe Anonyme des Plaques et Papiers Photographiques, A. Lumière et ses fils, 1889, 2420, 2556, 2558, 2635, 2879, 2899.  
 Soc. Anon. des Poudres, 812.  
 Societe Anonyme de la Poudrerie de Casteau, 1854.  
 Societe Anonyme des Poudres et Dynamites, 1804, 2961. •  
 Soc. Anon. des Poudres et Nitrates, 811. •  
 Soc. Anon. de Produits Chimiques, 2997.  
 Soc. Anon. de Produits Chimiques de Droogenbosch, 956, 2079, 2625, 2626.  
 Soc. Anon. des Prodyits Chimiques de la Manufacture de Javel, 1265.  
 Soc. Anon. A. Roudillon et Cie, 2606. •  
 Soc. Anon. la Soie Artificielle, 73, 78, 79, 90, 91, 234, 660, 3065.  
 Soc. Anonyme La Soie Artificielle de Tubize, 1899, 2625, 2649.  
 Societe Anon. La Soie de Basecles 2635.  
 Soc. Anon. la Soie nouvelle, 89, 2633, 2653.  
 Societe anonyme de Soieries de Maransart, 2614.  
 Soc. Anon. Soierres Nouvelles de Bruxelles, 92.  
 Societe Anonyme la Saccharification, 478.  
 Soc. Anon. Soie de St. Chamond, 3069.  
 Soc. Anon. de Treatments Chimiques, 2577.  
 Soc. anon. Travaux de Dyle & Bacalan, 2629.  
 Societe Anonyme des Usines des Moulins, 3003.  
 Soc. Anon. L. Vogel, *see also* Soc. Anon. Ing. L. Vogel.  
 Soc. anon. L. Vogel, 1229, 1292.  
 Societe Balland et Cie, 3058.  
 Societe E. Barbet et Fils et Cie, 2421, 2993. •  
 Soc. Belg. Koerting, 1090.  
 Soc. Belland et Cie, 2751.  
 Soc. LaBellignite, 2679, 2714.  
 Soc. Bonnard Bros., 2688.  
 Societe Boullier et Lafais, 2625, 2635. •  
 Soc. des Brevets San-Claudianse en Commandite, Chauvigney & Co., 2690.  
 Societe B. Buffaud and T. Robatel, 3066. •  
 Soc. Le Camphre, 2529, 2533.  
 Societe Celluloid Uninflammable, 1786  
 Societe des Cellulose Planchon, 2638, 2650.  
 Societe de Centre, *see* J. Dypowski.  
 Soc. Chim. des l sines de Rhone, *see* C. Gassmann.  
 Societe Chimique des Usines du Rhone, 2388, 2396, 2416, 2537, 2669, 2995, 3001, 3002, 3012, 3013.  
 Societe Civile de l'Etudes de l'Inde-chirable Gimson, 2601.  
 Soc. civile pour l'Exploitation de Brevets, 2415.  
 Soc. Civ. des Pellicules Nouvelles pour Cinematographs et autres usages, 2683, 2751, 2894, 2899.  
 Soc. des Colles et Gelatines Francaises, 2765.  
 Societe commerciale des crins, Georges Fournier, 2643.  
 Societe Comoy-Viñcent, 2766.  
 Soc. Comte and Mabut, *see* J. Voneche.  
 Societe Darrasse Freres, 2997.  
 Societe Darrasse Freres and L. Dupont, 331  
 Societe Debauge et Cie, 3012, 3046, 3058.  
 Societe Delannoy et Bonte, 2577, 2614.  
 Societe Desmarais, Morane and M. Denis, 2635.  
 Societe Dior Fils, 805, 1297.  
 Soc. d'Eclairage, Chauffage et Force Motrice, 1031.  
 Societe des Etablissements Gaimount, 2738, 3075.  
 Societe D'Etude du Carburol, 2394, 2496  
 Soc. d'Etudes Chimique pour L'Industrie, 1924, 2948, 2983.  
 Societe d'Exploit. des Proc. H. Boulard, 418, 480, 2425.  
 Societe d'Exploitation des Brevets Dolter, 3058.  
 Societe des Explosifs Industriels, 2961, 2972.  
 Soc. pour la Fabr. en Italie de la Soie



- Artificielle par le Procédé de Char-donnet, 2556, 2557, 2626.  
 Societe Le Fibrocol, 3082.  
 Soc. Filature Francaise de Chanvre et d'Etoupes, 2634, 2635.  
 Soc. Franc. des Alcools pure, 2413.  
 Soc. Francaise du Ceramoid, 2765.  
 Societe Francaise de Chaleur et Lumière, 2596.  
 Societe Francaise des Explosifs, 1804, 2961.  
 Societe Francaise Pour La Fabrication de Bebes-Jouets, 2730.  
 Societe Francaise des Tissue Blaises, 3059.  
 Societe Francaise de la Viscose, 2635, 2636, 2654, 3064, 3067, 3069, 3070, 3071, 3072, 3074, 3077, 3078, 3080, 3082.  
 Societe France des Distilleries d l'Indo Chine, 340, 479, 2422  
*Societe C. Garnier and F. Voland, see P. Depouilly.*  
 Societa Generale par la Cianamide, 928.  
 Soc. Generale du Coton Industrielle, 3022.  
 Societe Generale pour la Fabrication de la Dynamite, 1754, 2061.  
 Societe Generale Fabrication des Matières Plastiques, 74, 2519, 2539.  
 Soc. Gen. pour la Fabrique des Matière Plastiques, 2026.  
 Soc. gen. des Films and C. Gonon, 2894, 2899, 3051.  
*Societe Gen. du Maltose, see A. Carez*  
 Soc. Generale des Nitrures, 676, 851, 853, 897, 900, 917, 919, 910, 927, 946, 1004, 1006A, 1006B.  
*Soc. Gen. de la Soie Artificielle Linkmeyer, see R. Thiele.*  
 Societe Generale de la Soie Artificielle Linkmeyer, 2654.  
 Societe General de Soie Art. par le Procédé Viscose, 2635.  
 Societe, H. Goughriere, 1031.  
 Soc. Haemers et van Den Baviers, 302.  
 Soc. pour L'Industrie Chim. Bale, 2003.  
 Societe Industrielle de Celluloid, 1783, 2542.  
 Societe Industrielle de Cellulose, 2493, 2717, 2755.  
 Societe Industrielle pour l'Etude Industrielle de la Soie Serret, 2651.  
 Soc. Industrielle de Mulhouse 610.  
 Societe Industrielle le Produits Chimiques, 800.  
 Soc. Industrielle de Photographie, 2683, 2899.  
 Soc. Industrielle des Telephones, 3049.  
 Societe Jules Jean et Cie, and Georges Raverat, 2557, 2648.  
 Soc. F. Kuttner and P. Girard, 3071.  
 Societe Lacarriere pour la Fabr. des Lampes Electriques a Incandescence, 2596.  
 Societe Leclerc et Mabilie, 2763.  
 Societe Ledus, Heitz et Cie, 3046.  
 Soc. de Lille et Bonnières, 2417.  
*Societe Lizier Baffet et Fils, see A. Boyeux.*  
 Soc. de la Manufacture d'Indiennes "Emile Zundel," 2746, 2777.  
 Societe des Manufacturers N. Kouchinge, 3061.  
 Soc. Mariller et Robelet, 2763.  
 Societe Ih Merville et Cie, 2751, 2919.  
 Societe Matray Freres et Cie, 2675.  
 Soc. Meunier et Fumet, 2705.  
 Societe Meyer Freres, 230.  
 Soc. miniere et metallurgique de Penarroyna, 1073.  
 Soc. Nauton Freres et de Marsac and T. Tesse, 2538, 3049, 3050.  
 Societe Neumann, Marx et Desvaux, 2544.  
 Soc. Neumann, Marx, Desvaux, Herbert, 2767.  
*Soc. le Nitrogene, see also Soc. anon. le Nitrogene.*  
 Societe le Nitrogene, 916, 995, 1287, 1305, 1392.  
 Societe K. Oehler, 805.  
 Soc. A. Olier et Cie, 2673, 2679, 2686, 2689.  
 Societe L'Oyonnithé, 3000, 3009.  
 Societe A. Patat et Cie, 2492.  
*Societe H. Pervilhac, see M. Ratignier.*  
*Soc. H. Pervilhac & Cie, see M. Ratignier.*  
 Societe Petticolin, 2609, 2660, 2723, 2727.  
 Societe Pichard Brothers, 2644.  
 Societe Piemontese per la fabbricazione de Carbuio di Calceie Prodotti Affini, 921.  
 Societe des Procédés Rousseau, 2651.  
 Societe des Produits Amylacs, 426, 463, 480.  
 Societe des Produits Azotees, 927.  
 Societe des Produits de Croissy, 2776.  
*Societe Raucq, see P. Claes.*  
*Soc. M. Rose et Cie, see Bethisy.*  
 Soc. de St. Gobain, 1024.

- Soc. La Setaold, 2625.  
 Societe La Setoid, 2635.  
 Societe Sohler et Cie, 2880.  
 Societe la Soie Artificielle, 2648.  
 Societe de la Soie Artificielle Linkmeyer, 2635.  
 Soc. la Soie Artificielle du Nord, 89, 92.  
 Soc. Soie Artificielle du Nord und P. Villian, 3073.  
*Soc. des Soieries de Margnsart, see L. Leduc.*  
 Societe Suisse de Explosifs, 2961.  
 Societe Suisse de la Viscose, 3073.  
 Societe Syndicate Procetes Roussseau, 2646.  
 Societe Tapissier, 2648.  
 Soc. Thirion et Bonnet, 5, 2767.  
 Societe pour la Traitement Rationnel des Vidanges, 946.  
 Societe Trust Chimique, 430.  
 Soc. Union des Fabricants d'Acide Sulfurique de France, 1392.  
 Societe Universelle d'Explosifs, 2961.  
*Soc. Usines du Rhone, see Soc. Chimique des Usines du Rhone.*  
 Societe F. Vanoutryve & Co., 225.  
 Soc. Verrieux pere et fils, 2416.  
 Soc. Vielle Montagne, 1078.  
 Societe L. Vogel, 1233.  
 Societe Voltz, Weiss & Co., 2893.  
 Soc. Vuagnat and Gaget, 2679, 2685, 2717.  
 Soc. Weilue et Cie, 2577.  
 Society Chemical Industry, 2498.  
 Society Chem. Industry Basle, 2515, 2994, 3003, 3005, 3013, 3042.  
 Sochevsky, W., 2601.  
 Sockett, J., 701.  
*Socoloff, N., see H. Debus.*  
 Soddy, S., 2986.  
 Soeder, C., 2390.  
 Sody, L., 314.  
 Soedermann, K., 693, 695.  
 Söhlmann, B., 2689.  
*Sohier, see Societe Sohler.*  
 Sohlman, R., and C. Lundholm, 986, 990.  
 Sohlman, R., and W. Wilson, 990, 1390, 1421, 2634, 2961.  
*Sohn, C., see Usher-Walker.*  
 Sohon, M., 806.  
*Soie Artificielle, see La Soie Artificielle.*  
*Soie Artificielle de Nord, see P. Vilan.*  
*Soie Artificielle de Nord, see Soc. Anon. la Soie Artificielle de Nord.*  
*Soie Artificielle Soc. Anon. see Soc. Anon. la Soie Artificielle, France.*  
*Soie Parisienne, see La Campagne Francaise de la Soie Parisienne.*  
 Sokoloff, 1846.  
 Sokoloff, M., 1620.  
 Sokoloff, N., 1864, 1865.  
 Solati, L., 2425.  
 Solbrig, C., 302.  
 Sollbrig, 314.  
 Sollied, P., 238.  
 Solod, A., 638.  
 Solomon, 2868.  
 Solomon, D., 870.  
 Solomon, W., 2419.  
 Solvay & Co., 1360.  
 Soly, A., and E. Davier, 2555.  
 Sommermeier, E., 1043.  
 Somerville, A., 2602.  
 Somerville, C., 1041.  
 Somolo, C., 2416.  
 Sommer and Friedrich, 2746.  
 Sommer, F., 2746, 2748.  
 Sommer, R., 3000.  
 Sommermeier, E., 1019.  
*Sondag, W., see G. Schroeter.*  
*Sonden, see Petterson.*  
 Sonn, A., 2713.  
*Sonnery, J., see P. Girard.*  
 Sonntag, 243.  
 Sonstadt, E., 390, 409, 1131.  
 Soraas, I., 302, 600.  
*Sorauer, see B. Frank.*  
 Sorel, 1251, 1259. ●  
*Sorel, E., see F. Benker.*  
 Sorel, E., 725, 1217, 1249, 1284, 1285, 1286, 1317, 1337.  
 Sorge, K., and A. Weiskopf, 314.  
 Sorsen, S., 2604.  
*Sosman, R., see R. Day.*  
 Sostegni, 464.  
 Sostegni, L., 464, 478.  
*Solgia, T., see U. Borgi.*  
 Soubeiran, 2788.  
 Soubeiran, E., 676, 710, 1586, 2802.  
 Soubeiran, J., 413.  
 Soubeiran, L., 392.  
 Souchet, M., 2712.  
*Soulier, see Ferrier.*  
 Soulier, C., 1585, 2648, 2899.  
 Sourisseau, 1586, 2801.  
 Sourisseau, J., 2788.  
 Southby, E., 1087.  
 Southern, F., 2436.  
*Southern Electro-Chemical Co., see I. Hechenbleikner.*  
 Southern Electry-Chemical Co., 853, 1392.  
*Southgate, H., see T. Lowry.*  
*Southly, see Blyth.*  
*Southon, H., see W. Southon.*

- Southon, W., and H., 2727.  
*Southworth, T., see J. Cheetham.*  
*Southworth, T., see K. Cheetham.*  
 Sovereign, C., and A. Landers, 479.  
 Soxhlet, 1039, 1040, 2258.  
 Soxhlet, F., 481.  
 Spalding & Bros, A., 2679, 2699.  
 Spalteholz, K., 2602.  
 Spalteholz, W., and K. Haring, 2602.  
 Spangenberg & Co., 2855.  
 Spannagel, C., 2652.  
*Spanton, see Dunnet.*  
 Sparre, A., 288.  
*Sparre, F., see F. du Pont.*  
 Sparre, F., 701, 2493, 2608, 2945, 2957.  
 Sparre, P., 271, 292.  
*Spassky, L., see A. de Posnansky.*  
 Spassky, L., 208, 2421.  
 Spath, C., 2681, 2683, 2751, 2879.  
 Spatz, H., 314.  
 Speakman, H., 2397.  
 Spear, A., 2727.  
 Spear, G., 2602.  
 Specht, H., 2635.  
*Speck, T., see L. Bauer.*  
 Specketer, H., and F. Marburg, 1100.  
 Speedy, A., 2279.  
 Speir, R., and J. Mather, 1011.  
*Spence, see Hammond.*  
 Spence, 2757.  
*Spence & Sons, see Craig.*  
 Spence & Sons, 1061.  
*Spence F., & Sons, see A. Perl.*  
 Spence, J., 1075.  
 Spence, P., 1019, 1071, 1075, 1206.  
 Spence, P., and T. Illingworth, 1071.  
*Spence, P., and Sons, see E. Knecht.*  
 Spence, P., & Sons, 71, 660, 1268.  
*Spence, P., & Sons, see I. Llewellyn.*  
 Spencer, 2808, 2809, 2810.  
 Spencer, Kellogg & Sons, 1114.  
 Spencer, A., 2717.  
 Spencer, A., and K. McElroy, 926.  
 Spencer, J., 2744, 2864.  
*Spencer-Mason, E., see A. Gordon.*  
 Spengler, 2788.  
 Spenle, J., 227, 2556, 3066.  
*Sperk, A., see A. Skrabal.*  
 Sperling, 2748.  
 Sperr, F., 2779.  
 Sperr, F., and M. Darrin, 2592.  
 Sperry, E., 1844, 1888, 2598, 2677, 2694, 2700.  
*Sperry, R., see Scovill Manufacturing Co.*  
 Spica, 2354.  
 Spica, G., 1019, 2335, 2340, 2387, 2536, 2537, 2540, 2961, 2969.  
 Spicer, H., 302.  
*Spiegel, A., see Gewerkschaft Messel.*  
 Spiegel, L., 676, 677.  
 Spieler, W., 2861.  
 Spielmann, P., and H. Wood, 936.  
*Spilka, A., see G. Krämer.*  
*Spill, see Henley.*  
 Spill, 2662, 2665, 2667.  
*Spill, D., see Despaquis.*  
*Spill, D., see W. Henley.*  
*Spill, D., see T. Henly.*  
 Spill, D., 1624, 1854, 2009, 2383, 2510, 2661, 2701, 2721.  
 Spill & Co., D., 2662, 2666.  
 Spiller, 2814.  
 Spiller, A., 2676.  
 Spiller, J., 1590, 1591, 1633, 1899, 2802, 2803, 2804, 2805, 2816, 2817, 2818, 2819, 2825, 2827, 2903.  
 Spiller, J., and W. Crookes, 1590, 2817, 2825, 2885.  
 Spilsbury, F., and F. Emerson, 2428, 2471.  
 Spindler, H., 289, 314.  
 Spink Liquor Co., 2416.  
 Spinzig & Hommel, 1072.  
 Spinzig, O., and A. Wanning, 1100.  
 Spinzig, P., and A. Wannag, 1075, 1310.  
*Spiralit, see Explosivstoff, etc.*  
*Spiritine, Ltd., see J. Drapier.*  
 Spirlet, 1079.  
 Spirlet, X. de, 1073, 1079.  
 Spitta, H., 1086.  
*Spitteler, A., see W. Krische.*  
 Spitteler, A., 2648, 2763.  
 Spitzer, E., 699, 2751, 2908.  
*Spitzer, F., see J. Kachler.*  
*Spitzer, F., see E. Mueller.*  
 Spitzer, F., 2514, 2522.  
 Spitzer, F., and E. Müller, 945.  
*Spitzer, J., see Hoenig, M.*  
 Spitzer, S., 456.  
*Splawa-Neyman, H. v., see C. Harris.*  
*Splinterless Antimist Glass Syndicate, see S. Goldreich.*  
 Splittgerber, A., 314.  
 Spörl, H., 2893.  
 Spohr, J., 2503.  
 Sponar, J., 2642.  
*Spooner, see D. Bickford.*  
 Spooner, and Pyroxilin Manufacturing Co., 1874.  
 Spore, W., 1869.  
 Spottiswoode, W., 677, 692.  
*Sprague, C., see W. Ebough.*  
 Sprague, C., 1081.  
*Spranklin, G., see W. Gilbody.*  
 Sprengel, H., 1233, 1234, 1292, 2184.

- Sprenger, O.**, 2569.  
**Sprengluft Gesellschaft**, 847.  
**Sprengstoff Aktien-Gesellschaft Car-**  
**bonit**, 996, 1307, 1464.  
**Sprenk, J.**, see *K. Stoffels*.  
**Spring, W.**, 402, 1019, 1035, 1061,  
 2404, 2434, 2442, 2458, 2488, 2498,  
 2500, 2503, 2506.  
**Springer, A.**, 2414.  
**Springer, C.**, 302.  
**Springer, G.**, 104, 338.  
**Springer, L.**, 677, 808.  
**Springer, W.**, 1633.  
**Springmühl, F.**, see *O. Meyer*.  
**Springmühl, F.**, 1896, 2574, 2641,  
 2681, 2904.  
**Springthorpe**, 1804, 1811.  
**Spröngerts, E.**, 2391.  
**Spruance, S.**, 3071.  
**Spruijt, J.**, 2517.  
**Sprung, A.**, 2497, 2499.  
**Spurgeon, D.**, 2730.  
**Spurrier**, 2838.  
**Squibb, E.**, 2395, 2789, 2794, 2903.  
**Squire and Messel**, 1105.  
**Squire, S.**, 1104.  
**Squire, S., and R. Messel**, 1104.  
**Squire, P., and C. Caines**, 2571.  
**Squire, W.**, 479, 2413.  
**"S. R. P."**, 2817.  
**Ssachanov, A.**, 2490.  
**Ssobilew**, 2781.  
**S-t**, 2907, 3044.  
**St. Armande**, see *Gow*.  
**St. Armande, A.**, 2583, 2584.  
**St. Cl. Deville, H., and L. Troost**,  
 1014.  
**St. Cl. Deville, H., L. Troost and C.**  
**Myer**, 1014.  
**St George**, 2916.  
**St. Gilles, P. de**, 1017.  
**St. Sugden, H.**, see *G. Ireland*.  
**St.**, see also *Saint*, p. 3433.  
**Staa, see Svanberg**.  
**Staa, see L. Svanberg**.  
**Staa, see Westerling**.  
**Stabenhagen, A.**, 693.  
**Stace, W.**, see *H. Baker*.  
**Stack, T., and W. Seck**, 2392.  
**Stacy, C.**, see *E. Mann*.  
**Stade, G.**, see *J. Schumacher*.  
**Stadelmann**, 9412.  
**Staderini**, 2782.  
**Stadinov, G.**, 2487.  
**Stadler, H.**, 2467.  
**Stadler, W.**, 2765, 2777.  
**Stadlinger, H.**, 2625, 2650, 2652.  
**Staedeler, G.**, 4, 326.  
**Stæhlin**, see *C. Krauss*.  
**Staempfi, A.**, 281.  
**Stafford, H.**, see *J. Steele*.  
**Stafford, N.**, see *H. Smith*.  
**Stafford, N.**, see *J. Smith*.  
**Stafford, O.**, 302, 660.  
**Stage, O.**, 302, 660.  
**Stagg, T.**, 2748, 2755.  
**Stahl**, 2280.  
**Stahl, K.**, 1049, 1338.  
**Stahler, A., and J. Elbert**, 677, 847,  
 849.  
**Stahlman, C.**, 2448.  
**Stahmer, R.**, 132, 141, 150, 1901.  
**Staight, A.**, see *D. Staight*.  
**Staight, D., and A.**, 2718.  
**Stains Company**, 2674.  
**Staley, C.**, 2563.  
**Stalman, G., and Schimmel & Co.**,  
 2548.  
**Stanbury, H.**, see *A. MacFarlane*.  
**Standage**, 2856.  
**Standard Alcohol**, 209, 664, 2421.  
**Standfuss, K.**, 2679, 2689, 2730.  
**Standigl, J.**, 2855.  
**Stanes, F., and G. Roge**, 792, 798,  
 1084, 1289.  
**Stanford, E., and E. Viehoever**, 501.  
**Stange, L.**, 1357, 1389, 1391, 2779.  
**Stanislas**, see *Casimir-Stanislas*.  
**Stanley, C., and A. Warburton**, 2723,  
 2727.  
**Stanley, J.**, see *P. Martin*.  
**Stanley, J.**, 292, 730.  
**Stanley, J., and T. L. Massena**, 2604.  
**Stanley, W.**, 2921.  
**Stannard, C.**, see *F. Cook*.  
**Stanojewitsch, D.**, 2312.  
**Stansbie, J.**, 677, 951, 953, 1056.  
**Stantial, F.**, see *H. Howard*.  
**Staples, G.**, see *R. Reach*.  
**Starck, J.**, 1113.  
**Stark**, 2873.  
**Stark, E.**, 1879.  
**Stark, J.**, 2645, 2880.  
**Starke, E.**, see *P. Starke*.  
**Starke, P.**, 896, 900, 936, 942.  
**Starke, P., and E.**, 931.  
**Starnak, F.**, see *J. Stoklasa*.  
**Starr, A.**, 2574, 2611, 2718.  
**Starr, A., and W. Welling**, 2718.  
**Startin, J.**, 2788.  
**Stas**, 677, 692.  
**Stas, J.**, 1010, 1061, 1617.  
**Stassari, S.**, see *V. Wälteyne*.  
**Stassen, H.**, 104, 2602.  
**Stassfurter Chemische Fabrik vorm.**  
**Vorster & Grüneberg**, 1070.  
**Stathan, N.**, 302, 2396.  
**Staub, A.**, 1222, 1239.

- Staudenheim, R. von**, 2983.  
**Stavenshagen, A.**, 677, 1101.  
**Stearn, 3064.**  
*Stearn, A., see R. Tolman.*  
**Stearn, C.**, 2594, 2635, 2893, 3073.  
**Stearn, C., and C. Topham**, 2630,  
 • 2635, 2651, 3068.  
**Stearn, C., and F. Woodley**, 3075.  
**Stearns, C.**, 3063, 3076.  
**Steaua Romana Petroleum Gesell-**  
**schaft**, 1307, 1309.  
**Stebbing, 2658, 2838.**  
**Stebbing, E.**, 2842, 2889, 2917, 2919.  
**Stebbins, G.**, 1063, 1076, 1099.  
**Steht, L.**, 2788.  
**Steckel, B.**, 3450.  
**Steel, F.**, 1040.  
*Steele, B., see W. Remsay.*  
**Steele, E.**, 1754, 1825, 1869, 2694,  
 2711, 2975.  
**Steele, E., C. Bower, and H. Pochl-**  
**man**, 1784.  
**Steele, J., and H. Stafford**, 2741.  
*Steele, V., see T. Lowry.*  
**Steenbergen, H.**, 1335.  
**Stefan, J.**, 677, 2487.  
**Stefano, C. di**, 1099.  
**Stefano, F.**, 2700.  
**Steffens, C.**, 458, 664, 2419, 2485.  
**Steffens, J.**, 2763.  
**Stehle, F.**, 302.  
*Steiger, E., see E. Schulze.*  
**Steiger, E.**, 238.  
**Steiger, E., and W. Maxwell**, 238.  
**Steiger, E., and E. Schulze**, 238,  
 288.  
*Steigler, H., see O. Neuss.*  
**Steimmig, F.**, 930, 3020, 3072.  
*Steinau, R., see E. Bromme.*  
*Steinau, R., see H. Hampel.*  
*Steinbach, W., see W. Fischer.*  
**Steinbrecht, E.**, 1280.  
**Steinbuch, E., and P. Schetelig**, 2095.  
**Steiner, A.**, 2777.  
**Steiner, E.**, 230, 3066.  
**Steinhardt, 2785.**  
**Steinhart and Vogel**, 677, 808.  
**Steinherz, H., and F. von Schaller**,  
 2777.  
**Steinitzer, F.**, 2767, 2777.  
**Steinkern Ind. Gesellschaft A. Szolay-**  
**ski**, 2765.  
**Steinkopf, W., and R. Schenck**, 2392.  
**Steinmetz, C.**, 78, 677, 847, 945,  
 1005, 2659, 2777.  
**Steinschneider, A.**, 302.  
**Steinzeugwarenfabrik f. Canalisation**,  
 1273.  
**Stelter, F.**, 226.  
**Stelzner, J.**, 2413.  
**Stempel, H.**, 2698.  
**Stenger, E.**, 2880.  
**Stenger, E., and H. Heller**, 2871.  
**Stenhouse, J.**, 4, 1629, 1857, 1863.  
**Stensma, 721.**  
**Stepanow, 2780, 2782.**  
**Stepanow, E.**, 2781.  
**Stepanow, N.**, 1723, 1729.  
**Stephan, A.**, 2777, 2909.  
*Stephan, E., see O. Poppenberg.*  
**Stephan, H.**, 2763.  
**Stephan, L.**, 2746.  
**Stephan, K.**, 2529.  
**Stephan, K., and P. Hunsalz**, 2515,  
 2529.  
**Stephan, K., and P. Rhländer**, 2529.  
**Stephan, S.**, 2615.  
*Stephan, T., see G. Ditzler.*  
**Stephan, T., G. Ditzler, and V.**  
**Meertz**, 2630.  
*Stephani, O., see P. Benrath.*  
**Stephenson, J.**, 677, 808.  
**Stappacher, O.**, 451.  
**Stepski, R. von**, 2443.  
**Stern, A.**, 99, 128, 133, 134, 135,  
 140, 200, 201, 302, 1711.  
**Stern, E.**, 2594.  
*Stern, J., see A. Sullan.*  
*Stern, L., see F. Bartelli.*  
**Stern, O.**, 2398, 2409, 2421, 2503.  
*Stern & Co., see S. Goldreich.*  
**Sternberg, I.**, 946.  
*Sterne, E., see L. Goodwin.*  
**Sternitzki, G.**, 2848, 2860.  
**Serry-Hunt, T.**, 677.  
**Stettbacher, A.**, 1861, 2005.  
**Steuber & Co.**, 1225.  
**Steudel, O.**, 2856.  
**Steuler & Co.**, 1281.  
**Steur, J.**, 2779.  
*Stevens, see Beadle.*  
**Stevens, 292.**  
**Stevens, G.**, 2659, 2679, 2732, 2738.  
**Stevens, George H.**, 2734.  
**Stevens, G., and T.**, 2894.  
*Stevens, H., see C. Beadle.*  
**Stevens, H.**, 1042, 1903, 2670.  
*Stevens, J., see J. Hyatt.*  
*Stevens, J., see M. Lefferts.*  
*Stevens, J., see W. Wood.*  
**Stevens, J.**, 1781, 2081, 2384, 2403,  
 2477, 2487, 2492, 2500, 2506, 2508,  
 2537, 2539, 2540, 2544, 2545, 2551,  
 2580, 2581, 2613, 2665, 2671, 2672,  
 2677, 2685, 2718, 2748, 2867.  
**Stevens, J., and F. Axtell**, 2537.  
**Stevens, J., and Celluloid Co.**, 2549.  
**Stevens, J., and E. Harrison**, 2721,

2722.  
 Stevens, J., and M. Lefferts, 2683, 2899.  
 Stevens, J., and C. Thurber, 2659, 2727.  
 Stevens, J., and W. Wood, 2680, 2885.  
 Stevens, T., see G. Stevens.  
 Stevens, T., see G. Walker.  
 Stevens, T., 2619.  
 Stevens, W., 1781, 2493, 2676.  
 Stevensen, C., see V. Pigott.  
 Stevenson, see M. Guichard.  
 Stevenson, 2992.  
 Stevenson, W., 323, 2777, 3014, 3045.  
 Steward, C., H. Hall, and H. Beadle, 302.  
 Stewart and Greaves, 727.  
 Stewart, A., 850.  
 Stewart, D., 291, 314, 2788.  
 Stewart, F., 273, 332, 1879, 2420.  
 Stewart, J., 793.  
 Stewart, M., see C. Parsons.  
 Stewart, R., 1518, 2392, 2566.  
 Steyls, H., 2419.  
 Steyrey, A., see W. Seng.  
 Sthamer, R., 660.  
 Stiasny, E., 2777.  
 Stich, E., 2658, 2681, 2682, 2763.  
 Sticht, C., 2588.  
 Sticht, R., 1075.  
 Stickney, 1025, 1076.  
 Stickstoffanlagen, see *Industriegas-Ges., fur Sauerstoff*.  
 Stickstoffwerke, 921.  
 Stickstoffwerke Akt.-Ges., see R. Schall.  
 Stickstoffwerke, G. m. b. H., 1006B.  
 Stiebel, A., 3054.  
 Stiegler, A., 2696.  
 Stieglitz, J., see G. Smith.  
 Stierlin, C., 2601.  
 Stiker, F., 451.  
 Stiles, L., see F. Thatcher.  
 Still, C., 1307.  
 Stille, L., 946.  
 Stillesen, J., see E. Meyer.  
 Stillesen, J., 929.  
 Stillman, 2838.  
 Stillman, W., 2803, 2838, 2841, 2842, 2847, 2869, 2892.  
 Stillwell, 677.  
 Stine, C., 239, 1876.  
 Stingl, J., and T. Morawski, 1061.  
 Stinville, A., 1206, 1244, 1246.  
 Stiele, G., 197.  
 Stoak, T., and W. Peck, 2563.  
 Stobbe, H., 2767, 2884.  
 Stock, A., 677.  
 Stock, F., 2738.  
 Stock, R., 1005.  
 Stockbridge, H., 660.  
 Stockdale, R., see J. Marsh.  
 Stockelbach, F., 2425.  
 Stocker, C., 1635, 1782, 2099.  
 Stocker, J., 2727.  
 Stocker, J., see F. Lehmann.  
 Stocker, J., and V. Lehman, 2754.  
 Stocker, J., see O. Thiele.  
 Stocker, L., see F. Lehmann.  
 Stockhart, A., 1094.  
 Stockhausen, 2540.  
 Stockhausen, H., and R. Gruhl, 2777.  
 Stockhausen, J., 2503, 2513, 2651, 2659, 2673, 2763.  
 Stockis, E., 2919.  
 Stockmeier, H., 2564.  
 Stocks, H., 410.  
 Stocks, W., 302.  
 Stockton, F., 513, 570, 648.  
 Stoddard, J., 1382.  
 Stoddard, W., 2593, 2608, 2609.  
 Stoerber, 2788.  
 Stoeklin, E. de, 2421, 2444, 2464.  
 Stoefler, E., 2687, 2705, 2709.  
 Stoerk, J., see A. d'Asson.  
 Stoerk, J., 1732, 2625, 2635.  
 Stoermer, R., and K. Behn, 2777.  
 Stoffels, K., and J. Sprengel, 2689.  
 Stoffmehl, C., 1362.  
 Stohmann, A., 2431.  
 Stohmann, F., 459, 2386, 2432, 2440, 2441, 2455, 2456, 2514.  
 Stohmann, F., and H. Langbein, 438.  
 Stokes, 387, 1043, 1840, 2285.  
 Stokes, F., and C. Hillman, 2911, 2918, 2920.  
 Stokes, O., 2280, 2487.  
 Stokes, H., 390.  
 Stokes, H., and H. Weber, 2757, 2758.  
 Stokes, J., see O. Moore.  
 Stoklasa, J., 238.  
 Stoklasa, J., A. Ernest, F. Starnak, and E. Vitek, 677.  
 Stolba, F., 1061, 1130.  
 Stolberg-Actien-Ges. Borchers & Graumann, 1078.  
 Stoll & Kopke, 427.  
 Stolle, G., 3001.  
 Stollwerk Akt.-Ges. Gebr., 2738.  
 Stollenhoff, R., see H. Keil.  
 Stoltzenberg, H., 2546.  
 Stolz, F., 2903.  
 Stolzenwald, 1372.  
 Stolzenwald, F., 1386.  
 Stolzenwald, G., 1306, 1355.  
 Stolzenwald, S., 1424.  
 Stone, A., see L. Diets.

- Stone, E., see R. Gans.*  
*Stone, E., 238.*  
*Stone, G., 1080, 1101, 1103, 1108, 1109, 1112, 1124, 1167, 1197.*  
*Stone, W., see H. Chapman.*  
*Stone, W., see B. Tollens.*  
*Stone, W., 183, 1846, 2282.*  
*Stone, W., and W. Test, 302.*  
*Stone, W., and B. Tollens, 320.*  
*Stoneham, J., see R. Pearson.*  
*Stora Kopparbergs Bergslags Aktiebolag, 201, 213, 314, 2420.*  
*Storer, F., 197.*  
*Storer, J., see J. Whelpley.*  
*Storey, see Wilson.*  
*Storey, H., see A. de Pont.*  
*Storey, I., see A. de Pont.*  
*Storey, J., see W. Wilsqn.*  
*Stork & Co., 2981.*  
*Storm, C., see W. Snelling.*  
*Storm, C., 413, 2334, 2985.*  
*Storm, G., see W. Snelling.*  
*Storm, G., 736.*  
*Storm, O., see A. Sinding-Larsen.*  
*Stormer, 1741, 2281.*  
*Storp, M., 2579.*  
*Story, J., see W. Wilson.*  
*Story, W., 2777.*  
*Stotz & Co. Elektrizitäts Ges., 3044.*  
*Stout, see Nichols Copper Co.*  
*Stout, H., see Nichols Copper Co.*  
*Stout, H., 1073, 1075.*  
*Stouvenaut, L., 2402.*  
*Stow, P., 2896.*  
*Strachan, J., 302.*  
*Strachan, R., and J. Robertson, 2560.*  
*Strache, H., see J. Pintsch.*  
*Strache, H., 2495, 2500.*  
*Stracke, F., 2541.*  
*Stroets, H., see H. Wulkan.*  
*Strange, E., see A. Fernbach.*  
*Strange, E., see F. Matthews.*  
*Strange, E., see W. Perkin.*  
*Strange, E., J. Carle, and A. Longsdon, 302.*  
*Strange, E., E. Graham, and E. Burrell, 2501.*  
*Strange, E., E. Graham, and E. Risolieri, 2503.*  
*Strasser, 2782, 2784.*  
*Strassmann, 2412.*  
*Strassmann, F., 2476, 2477.*  
*Straub, J., 701.*  
*Strauch, see Gerdts.*  
*Strauss, D., 3003.*  
*Strauss, J., 2337, 2940.*  
*Strauss, S., see J. Kohy.*  
*Strauss, S., 2579.*  
*Strecker, 1846.*  
*Strecker, A., 1588, 1864.*  
*Strecker-Aufermann, H., 2909.*  
*Streeb, 242.*  
*Streeb, E., 302.*  
*Street, E., 2700, 2961.*  
*Street, G., 2515.*  
*Street, J., 677.*  
*Streeter, E., 2783.*  
*Streeter, H., see J. Low.*  
*Streeter, L., 2383, 2659, 2663, 2685, 2740.*  
*Strehlenert and Rinman, 298.*  
*Strehlenert, E., 283, 314, 660, 2388, 2625, 2635, 2639, 2648, 2651, 3064.*  
*Strehlenert, R., and C. Grandquist, 2635.*  
*Strehlenert, R., and Westergren, 2637.*  
*Strehli, J., 102, 105.*  
*Streiff, 716.*  
*Streiff, A., 513.*  
*Streiff, E., 1394.*  
*Streiff, J., 2782, 2783.*  
*Streissler, A., 2875.*  
*Streit, G., see L. Rohrmann.*  
*Streitberger, F., see H. Matthes.*  
*Stremayr, see E. v. Hardt-Stremayr.*  
*Streubel, O., 2669, 2767.*  
*Stringa, E., see A. Leoni.*  
*Stringfellow, J., 957.*  
*Stritar, M., 2406.*  
*Stritar, M., and H. Zeidler, 2406.*  
*Strobl, A., 3061.*  
*Stroblberger, 1619, 1809, 2904.*  
*Strömhölm, D., 1019.*  
*Strohbach, E., see R. Mohlau.*  
*Strohbach, R., 2407.*  
*Strohmer, F., 2473, 2744.*  
*Strohl, 2788.*  
*Strohmeyer, 389.*  
*Strolberger, 2574.*  
*Strother, F., 302.*  
*Stromeyer, F., 408.*  
*Strommenger, 677.*  
*Stroof, J., 1365.*  
*Strosacker, C., 3024.*  
*Strüber, W., see G. Fendler.*  
*Strumberg, F., 446.*  
*Strumper, J., 2907.*  
*Strut, R., 677.*  
*Struthers, A., 415.*  
*Strutt, R., see H. Baker.*  
*Strutt, R., 686, 692, 847.*  
*Strutt, S., 2912.*  
*Struve, H., 1019.*  
*Struwe, F., see O. Schmidt.*  
*Strype, W., 1239, 1252.*  
*Strzoda, see Krell Strzoda.*

- Strzoda, W., 956, 1006, 1276, 1389, 1390.  
 Stuart, C., 2638.  
 Stuart-Bailey, C., 942.  
 Stuart-Wortley, H., *see* H. Wortley.  
 Stubenrauch, A. de, 1811.  
 Stubling, 2657, 2723.  
 Studel, V., 2453.  
 Studer, A., 2439.  
 Stübling, 1779, 2679, 2680, 2713.  
 Stuer, B., *see* Chem. Fabrik Rhenania.  
 Stuer, B., *see* H. Fritzsche.  
 Stürcke, H., 2961.  
 Stueremburg, C., 2860.  
 Stürenberg, C., 2815.  
 Stuhlmeier, W., 2566.  
 Stulemeyer, C., 2637, 3081.  
 Stumpf, M., 480.  
 Sturmey, *see* Bramco, Ltd.  
 Sturtevant, 1183, 1185, 2224, 2225.  
 Sturtevant, B., 638.  
 Stusser, R., *see* J. Callsen.  
 Stutz, C., 921.  
 Stutzer, 213.  
 Stutzer, A., *see* L. Gabek.  
 Stutzer, A., 196, 242, 302, 314, 677, 735, 936, 1006B, 1087.  
 Stutzer, A., and S. Goy, 869.  
 Stutzer, A., and A. Isbert, 419.  
 Stutzer, A., and R. Maul, 2480.  
 Stutzer, A., and O. Reitmaier, 2476, 2479.  
 Stutzke, R., 484.  
 Suarez, P., *see* G. Jones.  
 Subaschow, E., 238.  
 Suberit-fabrik, 2583, 2607.  
 Subow, P., 2434, 2442, 2459.  
 Subrenat, J., 3071.  
 Subrenat, R., 226.  
 Suchannek, 2782.  
 Sudakoff, 389.  
 Sudborough, J., *see* H. Hibbert.  
 Sudborough, J., and L. Lloyd, 2509.  
 Sudborough, J., and J. Millar, 718.  
 Sudenburger Maschinenfabrik und Eisengiesserei, 314, 454, 1975, 2015.  
 Sudheim and Koppen, 1887.  
 Suentola, S., 2572.  
 Suerern, *see* Sagel.  
 Suevern, C., 106, 1758, 3064.  
 Sövern, K., 2628, 2635, 2641, 2642, 2644, 3068.  
 Sövern, K., and Herzog, 2651.  
 Sövern, K., and F. Mach, 3073.  
 Suffit, *see* Coulory-Suffit.  
 Sugden, H., *see* G. Ireland.  
 Sugden, T., *see* J. McDougall.  
 Sugiyama, K., *see* K. Falk.  
 Sugiyama, N., 2516.  
 Suida, *see* Liechti.  
 Suida, 930.  
 Suida and Hoehnel, 67.  
 Suida, W., *see* L. Liechti.  
 Suida, W., 38, 64, 3054.  
 Suida, W., and P. Gelmo, 66.  
 Sulc, O., 2490, 2500, 2506.  
 Sulfate of Ammonia Association, 793.  
 Sulfur Mines Co., 1049.  
 Sullivan, *see* Cowley.  
 Sullivan, A., *see* M. Thompson.\*  
 Sullivan, M., 727.  
 Sullivan, T., 1314.  
 Sullwald, A., 735.  
 Sulman, *see* Poore.  
 Sulman, H., *see* F. Teed.  
 Sulman, H., 729.  
 Sulman, H., and E. Berry, 456.  
 Sulman, H., H. Picard, and Salts Extraction Syndicate, Ltd., 729.  
 Sultan, A., and J. Stern, 2483.  
 Sulzberger, N., 2390.  
 Sulzer, H., 677, 926, 927, 946, 3004, 3061.  
 Sulzer-Rieter, H., 3004.  
 Summers, H., 2781, 2782, 2783.  
 Summers, I., 690, 701, 850, 926, 942, 1004.  
 Sumner, G., 2743.  
 Sundblad, G., *see* Sandberg.  
 Sundblad, G., *see* E. Sandberg.  
 Sundell, A., 677.  
 Sunderland, A., 33.  
 Sundström, K., 1309, 1391.  
 Sundt, L., 726.  
 Sunye, M., 2416.  
 Superfosfat Fabriks Aktiebolag, 2948.  
 Superphosphat Fabrik, *see* Svovlsyre.  
 Surcouf, P., 1302.  
 Surface, H., 303.  
 Surface, H., and R. Copper, 303.  
 Surface Combustion, Inc., 853.  
 Suringar, *see* Tollens.  
 Suringar, H., and Tollens, 238.  
 Suringar, H., and B. Tollens, 44.  
 Surre, L., *see* C. Fabre.  
 Sussex, F. de, 986.  
 Sussmann, M., 335.\*  
 Sussner, F., 1619.  
 Sutcliffe, E., 1076.  
 Sutcliffe, J., 2741.  
 Sutermeister, E., 303.  
 Suthby, A., *see* F. Blyth.  
 Sutherland, D., 1739, 2500, 2606, 3049.  
 Sutherland, D., and W. McLaren, 2606.  
 Sutherland, D., and Wall Paper Mfg. Ltd., 1787.



- Sutherland, M., *see* G. Henderson.  
 Sulkhoff, W., *see* J. Tilmans.  
 Sutton, C., 2855.  
 Sutton, T., *see* A. Davanne.  
 Sutton, T., *see* G. Elliott.  
 Sutton, T., *see* J. Elliott.  
 Sutton, T., 1599, 1693, 1694, 1788, 2795, 2802, 2805, 2809, 2810, 2817, 2825, 2827, 2830, 2831, 2832, 2835, 2836, 2868, 2839, 2841, 2842, 2844, 2845, 2847, 2851, 2852, 2855, 2860, 2861, 2864, 2903, 2920, 2921.  
 Sutton, T., and G. Dawson, 2812, 2814, 2816.  
 Sutton, T., and S. Wortley, 2886.  
 Suzuki, 2782.  
 Suzuki Shop, 2516.  
 Svanberg, 1588.  
 Svanberg and Staaf, 1588.  
 Svanberg, L., 1808, 1849.  
 Svanberg, L., and Staaf, 1863, 1843, 1864.  
 Svendsen, O., 933.  
 Sverdrup, W., *see* S. Lagermarck.  
 Svovlsyre and Superphosphat Fabrik, 1072.  
 Swain, 2788.  
 Swain, J., 2916.  
 Swan, *see* Cameron-Swan.  
 Swan, *see* D. Cameron-Swan.  
 Swan, *see* Mauson.  
 Swan, 101, 1241, 2921.  
 Swan & Leslie, 2899.  
 Swan, J., 534, 2046, 2594, 2623, 2646, 2836, 2864, 2892, 2911.  
 Swan, J., and J. Leslie, 2751.  
 Swanson, A., *see* D. Lopez.  
 Swanson, A., 2708.  
 Swart, W., 1081.  
 Swarts, T., 2522.  
 Swasey, J., 2740.  
 Swedish Nitric Syndicate, 990, 1375.  
 Sweeney, P., 2659.  
 Sweet, C., *see* M. Coughlin.  
 Sweet, M., 2701.  
 Sweeting, G., 1080.  
 Sweetland, E., 2559.  
 Sweetland, E., F. Manning and W. Hilpert, 2777.  
 Swinburg, A., 314.  
 Swete, O., and W. Main, 2595, 2846.  
 Swett, C., 2551, 2742.  
 Swinburne, J., 1019, 1025.  
 Swindells, I., *see* H. Kenyon.  
 Swindin, N., 677, 747, 957, 1352.  
 Swint, W., 2957, 2961, 2967.  
 Swope, M., 2981.  
 Sy, A., 1710, 1831, 2327, 2339, 2346, 2347, 2365.  
 Syberg, *see* H. Plater-Syberg.  
 Syme, J., *see* G. Rhodes.  
 Symon, R., *see* H. Maxim.  
 Symonds, J., and J. Fell, 1076.  
 Symons, C., *see* W. Rae.  
 Syndicate, C. I., *see* R. Parsons.  
 Syniewski, 390.  
 Syniewski, V., 390, 391, 406, 407, 422.  
 Syniewski, W., 390, 432, 1819.  
 Szablewski, S., 2788.  
 Szamek, J., 314.  
 Szanyi, B., and Schleu, 2395.  
 Szarvazy, E., 677, 2410.  
 Szczepanik, J., 2881, 2884, 2911.  
 Szeberenyi, P., 2421, 2503.  
 Szek, J., and G. Schauli, 2738.  
 Szekcley, 2820.  
 Szelinski, B., 2549, 2676, 3043.  
 Szerelmey, N., 2600.  
 Szigeti, W., 677, 752, 1235.  
 Szilagyi, 2479.  
 Sznajder, L., 1042.  
 Szolayski, A., *see* Steinkern Ind.  
 Taber, W., *see* J. Bell.  
 Tabersky, 2822.  
 Taboin, A., *see* H. Farjas.  
 Taddei, C., 2550.  
 Taddeo-Haenke, 727.  
 Tafel, J., *see* E. Fischer.  
 Tafel, J., 953, 2433, 2530.  
 Tafel, J. and K. Schmitz, 2435.  
 Tafto, J., 1072.  
 Tagliani, G., 226, 230.  
 Tailby, N., *see* H. Collins.  
 Taipale, K., 2466.  
 Tait, A., 330, 1244.  
 Tail, P., *see* T. Andrews.  
 Tak, P., *see* V. de Schepper.  
 Takahashi, T., 2483.  
 Takamatsa, T., 2510.  
 Takamine, J., *see* E. Mills.  
 Takamine, J., 420, 475.  
 Takamine, J., and S. Satow, 2551.  
 Takane, T., *see* T. Hashiride.  
 Takeda, K., 1086.  
 Takeuchi, T., 900.  
 Takeuchi, T., and R. Inoue, 2483.  
 Talabot, J., *see* G. Dille.  
 Talbot, 1584.  
 Talbot, Fox, 2797.  
 Talbot, R., 2893.  
 Talbot, W., 2832.  
 Taliaferro, T., 2585.  
 Taliani, M., 901, 910, 1006.  
 Talksteingewerkschaft, *see* Asten-Graphit.  
 Talley, E., 2513.  
 Talley, H., 2979.

- Talmadge, J., 2515.  
 Talobre, A., and E. Bertrand, 2679, 2717.  
 Taluan, J., 2763.  
 Tamann, G., 2441.  
*Tamaru, S., see F. Haber.*  
 Tambach, R., 2763.  
*Tamburello, A., see A. Peratoner.*  
 Tamin, 602.  
*Tamman, G., see O. Faust.*  
 Tammann, G., 1019, 2458, 2514, 2515.  
 Tanaka, Y., 463.  
 Tanari, S., 958.  
*Tandelli, A., see C. Pozzi*  
 Tandler, 2782.  
 Tandler, J., 2783.  
 Tangl, 243, 262.  
 Tangye, A., 1072.  
 Tanimura, K., 2577.  
 Tannette Co., 2605.  
 Tanquerel, C., 331.  
 Tanret, C., 42, 184, 185, 423, 431, 445, 483.  
 Tappeiner, W. von, 346.  
 Tarand, A., and P. Truchot, 1232.  
*Tarasoff, K., see P. Shestakoff.*  
 Tarassoff, K., 2777.  
 Taraud, A., and P. Truchot, 729, 1265, 1288.  
 Tarbell, R., 1336.  
*Tardy, see G. Bouchardat*  
 Tardv, 2533.  
 Tarniquet, F., 2861.  
 Tarnow, I. von, 2946.  
*Tarrant, A., see E. Rideal*  
 Tartar, H., 303, 314.  
 Tartenson, 2788.  
 Tartenson, A., 2788.  
 Tarugi, N., 953, 1294.  
 Tarugi, N., and G. Bianchi, 1051.  
 Tarugi, N., and G. Cioni, 2721.  
 Tas, H., and J. David, 2694, 2756.  
 Taschl, V., 449.  
*Tasker, W., see T. Jones.*  
 Tasker, W., 2699.  
 Tassel, E., 718.  
*Tate, see Greenwood.*  
 Tate, F., 1361, 1363.  
*Tate, W., see H. Greenwood.*  
*Tatham, C., see R. Pioeye.*  
 Tatham, G., 2721.  
 Tatham, W., 626, 627.  
 Tatlock, R., and R. Thomson, 1094.  
*Talon, J., see P. Talon.*  
 Taton, P., and J., 2864, 2865, 2920.  
 Tauber, F., 677, 936.  
 \*Tauf, H., 144.  
 \*Tauleigne, A., and E. Mazo, 2883.  
 Taupenot, 2798, 2826, 2835.  
 Taurel and Griffet, 1033.  
*Taurke, F., see H. Riesenfeld*  
 Taus, J., 2572.  
 Tausen, M., 677.  
 Tausent, M., 847.  
 Taufs, H., 45, 195, 242, 243, 26-, 519.  
 Taussig, M., 2095, 2718.  
 Tavernier, A., and C. Oulman, 314, 2669, 2767.  
 Tawse, J., 2835.  
*Taylor, see Buchanan-Taylor.*  
*Taylor, see Knapp*  
 Taylor, 99, 677, 2902.  
 Taylor, Lang & Co., 588.  
 Taylor and Scott, 1292.  
*Taylor, A., see J. Hardcastle.*  
 Taylor, A., 2789.  
*Taylor, C., see J. Charles.*  
 Taylor, C., and H. Cook, 303.  
 Taylor, E., 2583, 2607.  
 Taylor, E., and F. Bergh, 1119.  
*Taylor, F., see W. Dean.*  
*Taylor, F., see T. Patterson.*  
 Taylor, F., 98, 104, 572, 660, 2386.  
*Taylor, G., see W. Cope.*  
 Taylor, G., 896.  
 Taylor, G., and J. Capps, 945.  
 Taylor, G., J. Capps, and A. Coolidge, 677, 704, 847.  
 Taylor, G., and J. Davis, 677.  
 Taylor, G., and I. Knapp, 896, 946, 1006.  
 Taylor, G., and J. Kapps, 900.  
 Taylor, G., and E. Scott, 1231.  
*Taylor, M., see W. Reynolds.*  
*Taylor, H., see E. Rideal.*  
 Taylor\*, H., 1011.  
*Taylor, J., see G. Jarman.*  
*Taylor, J., see A. Silverwood.*  
*Taylor, J. & Co., see T. Taylor.*  
 Taylor, J., 677, 812, 1579, 2060, 2801, 2832, 2835, 2851, 2927, 3080.  
 Taylor, J., and J. Davis, 900.  
 Taylor, R., 618, 1578, 2325.  
 Taylor, S., 2981.  
*Taylor, T., see R. Hollins.*  
 Taylor, T., 101, 104, 597, 2805.  
 Taylor, T., N. Beswick, and E. Jenkins, 632.  
 Taylor, T., and J. Nelson, 664.  
 Taylor, T., and J. Taylor & Co., 2556.  
*Taylor, W., see W. Reynolds.*  
 Taylor, W., 580, 2727, 2820, 2917.  
 Tcherniac, J., 926.  
 Teague and Buxton, 67.  
 Teape, J., 2867.  
 Teas, W., 315.

- Technische Untersuchungen*, see *Centralstelle für Wissenschaftlich-Technische Untersuchungen*.
- Techno-Chemical Laboratories, Ltd.*, see *N. Testrup*.
- Tedesco, A., 2414, 2591.
- Tedesco, H., 1677.
- Tedesko, see *L. Lilienfeld*.
- Teed, F., 1360.
- Teed, F., H. Sulman, and H. Picard, 1025, 1028.
- Teeple, J., 200.
- Teeple, O., see *A. Broudbent*.
- Teeple, O., 2966.
- Teichmann, 946.
- Teichner, G., 1294.
- Teichner, G. and P. Askenasy, 1293.
- Teilnehmer*, see *Salzbergwerk Neustassfurt*.
- Teisler, E., 958, 2581.
- Teisseire and Jacquemet, 2832, 2921.
- Teisset, J., and L. Prat, 1385.
- Telfer, J., see *D. Dow*.
- Telle, E., 2740.
- Telle, F., 1051, 1508.
- Tellier, C., 695, 2383.
- Tellyesniczky, von, 2782.
- Tellyesniczky, K. v., 2781.
- Telschow, 2658.
- Telschow, R., 2739.
- Teltscher, F., 230.
- Temmel, R., 2746.
- Tempere, A., 2496.
- Tennant, J., and W., 2587.
- Tennant, W., see *J. Tennant*.
- Tennant-Lee, C., 303.
- Tennessee Copper Co., 1076.
- Tennessee Copper Works, 1192.
- Tentelw, 1114.
- Tentelw Chemical Works, 814, 846, 1002, 1092, 1108, 1151, 1152, 1154.
- Tenua*, see *D. Gaj-Tenua*.
- Ten-Winkel, A., 2911.
- Teplow, M., 1101.
- Tereschin, S., 2434, 2458, 2490, 2496, 2498, 2503, 2505, 2506, 2508, 2509.
- Terplan, G.*, see *J. Boeseken*.
- Terlikowski, K.*, see *T. Chrzascz*.
- Terreforte, J., 2861.
- Terreil*, see *Fremy*.
- Terreil*, see *E. Fremy*.
- Terrell, T., 1001, 1092, 1292, 2596.
- Terrell, T. W. Hogg, and J. Thomson, 1212, 1237.
- Terrero, M.*, see *W. Estor*.
- Terrisse, 1122.
- Terrisse, H., 2592, 2777.
- Terroine, E., see *L. Morel*.
- Terroine, E., 2491.
- Terry, W., 2855.
- Terniev, G.*, see *L. Jones*.
- Terniev, G.*, see *D. Morton*.
- Tesch, H., 2904.
- Teschard, 2829.
- Teschemacher, 1583.
- Teschemacher, E.*, see *R. Porret*.
- Teschemacher, E., and J. Smith, 1050.
- Teske, C., 2741.
- Tesse, T.*, see *Soc. Nauton Freres & de Marsac*.
- Tesse, T., 2536.
- Tessen, E., 2563.
- Tessie du Molay, C.*, see *C. Murechal*.
- Tessier, J., 2900.
- Tessler, 2897.
- Tessler, A., 3060.
- Test, W.*, see *W. Stone*.
- Testelin, 2814, 2886.
- Testelin, A., 2814.
- Testone, G., 355.
- Testrup, N., and *Techno-Chemical Laboratories, Ltd.*, 921.
- Testrup and Wet Carbonizing, Ltd., 230.
- Testu, E.*, see *L. Boule*.
- Tetley, H., and J. Clayton, 2562, 2629, 2636.
- Tetweiler, B., 2601.
- Teudt, H., 677.
- Teufer, B.*, see *L. Hermsdorf*.
- Teunissen, G., 2602.
- Textile Finishing Machinery Co., 597.
- Textor, C.*, see *O. Kress*.
- Teyssen, J.*, see *H. Cottu*.
- Thalau, W., 1036.
- Thalen, F., 677.
- Thalheimer, A., 2667.
- Thalin, 1063.
- Thalk, E.*, see *O. Carlsson*.
- Thalmann, J., 2679.
- Thamm, A., 2790.
- Than, C., 714.
- Thann Chemical Co., 1104.
- Tharaldsen, F.*, see *J. Thoresen*.
- Thatcher, F., and L. Stiles, 2421.
- Thaysen*, see *Reilly*.
- Thaysen, A.*, see *Desborough*.
- Thaysen, A.*, see *N. Fleming*.
- Thaysen, A.*, see *J. Reilly*.
- Thede, J., 1244.
- Theile, E., 2654.
- Thelberg, J., 1292.
- Thenard*, see *L. Gay-Lussac*.
- Thenard, A.*, and *S. Thenard*, 677.
- Thenard, P.*, 4, 239.
- Thenard, S.*, see *A. Thenard*.

- Theodorovic, W., 2251, 2491, 2947.  
 Thermal Syndicate, 1362.  
 Theryc, C., *see* A. Oblasser.  
 Theryc, C., and A. Oblasser, 2700.  
 Thesmar, G., *see* L. Baumann.  
 Theumann, M., *see* J. Koetschet.  
 Thevenas, W., *see* E. Naef.  
 Thibault, E., 2795.  
 \*Thickens, J., *see* M. Cline.  
 Thickens, J., 303.  
 Thiebaut, *see* Beltzer.  
 Thiebaut, A., 2888, 2902.  
 Thiebaut, F., *see* F. Belfzer.  
 Thiebaut, J., 2573.  
 Thiel, 1638.  
 Thiel, A., 1327.  
 Thiele, 727.  
 Thiele, E., *see* G. Kruess.  
 Thiele, E., 89, 216, 217, 2628, 2635, 2642, 2651, 3052.  
 Thiele, E., and Soc. Gen. de la Soie Artificielle Linkmeyer, 89.  
 Thiele, F., *see* E. Cunningham.  
 Thiele, F., 1419.  
 Thiele, J., 714, 2988.  
 Thiele, L., 1217, 1283.  
 Thiele, M., 2777.  
 Thiele, O., 725, 2676, 2720, 2981.  
 Thiele, O., and J. Stocker, 2611.  
 Thicmann, H., 2592.  
 Thieme, B., 1857.  
 Thieme, O., 2552.  
 Thicmt, A., 2601.  
 Thier, H., 2706.  
 Thierfelder, H., and J. von Mering, 2440.  
 Thierry, A., *see* J. Thierry.  
 Thierry, J., *see* Hubert & Co.  
 Thierry, J., 2704.  
 Thierry, J., and A., 2705, 2709, 2714.  
 Thies, F., 224.  
 Thiesen, Scheel and Diesselhorst, 1521, 1522.  
 Thiesen, M., 1522, 1523.  
 Thilo, J., 710, 1317.  
 Thlogen Co., 1087.  
 Thirion, *see* Soc. Thirion.  
 Thirion, 1086.  
 Thiry, L., 2009.  
 Thissell, G., *see* J. Rudolphs.  
 Thistlewaite, W., 2664.  
 Thörl, F., 452.  
 Thörner, W., 303, 1036, 2463.  
 Thole, F., *see* A. Dunstan.  
 Thole, F., 2490, 2493, 2503.  
 Thom, J., *see* T. Craddock.  
 Thomas, *see* J. Simon-Thomas.  
 Thomas, 1022, 2324, 2709.  
 Thomas and Bonavita, 76.  
 Thomas and Crasser, 2717.  
 Thomas and Provost, 3076.  
 Thomas, A., 437, 2899.  
 Thomas, B., 988, 989.  
 Thomas, D., *see* J. Harris.  
 Thomas, D., 1235.  
 Thomas, F., *see* M. Oliver.  
 Thomas, F., *see* L. Roos.  
 Thomas, E., 3071, 3076.  
 Thomas, E., and W. Bloxam, 1329.  
 Thomas, E., and J. Bonavita, 2686, 3076.  
 Thomas, E., J. Bonavita, and M. Olivier, 3070, 3082.  
 Thomas, F., *see* W. Bochers.  
 Thomas, F., 1080, 2763.  
 Thomas, G., *see* S. Young.  
 Thomas, J., *see* F. Donnan.  
 Thomas, J., 2176, 2336, 2347.  
 Thomas, K., 1023.  
 Thomas, I., 2948.  
 Thomas, M., 2738, 2781.  
 Thomas, O., 714, 2777.  
 Thomas, P., *see* L. Beals.  
 Thomas, P., 429, 3005.  
 Thomas, R., and E. Prevost, 228, 229.  
 Thomas, S., 2740.  
 Thomas, V., 695, 714, 718, 2504.  
 Thomas, W., 2727.  
 Thomas, W., and A. Jolley, 2564.  
 Thomassin, L., *see* P. Langlois.  
 \*Thomlinson, J., *see* T. Terrell.  
 Thomlinson, J., 742, 2999.  
 Thommee, 2676.  
 Thompson, C., 2727, 2860.  
 Thompson, E., 1006.  
 Thompson, F., 2894, 2895, 2899.  
 Thompson, G., 2676.  
 Thompson, H., 2855.  
 Thompson, J., *see* A. Gavard.  
 Thompson, J., *see* J. Griffin & Sons, Ltd.  
 Thompson, J., *see* A. du Pont.  
 Thompson, J., 2454, 2455, 2947, 2948.  
 Thompson, J., and J. Rickmann, 162.  
 Thompson, L., 1849.  
 Thompson, M., *see* N. Thompson.  
 Thompson, M., and R. Lombard, 677.  
 Thompson, M., and A. Sullivan, 1096.  
 Thompson, N., and M., 1087.  
 Thompson, P., J. Luii, and W. Van Dam, 2687.  
 Thompson, T., *see* J. Campbell.  
 Thompson, W., *see* J. Heys.  
 Thompson, W., 303, 2599, 2612, 2694, 2701, 2730, 2789, 2793, 3076.  
 Thoms, 243.

- Thomsen, 677, 716, 721, 1005, 2386.  
 Thomsen Chemical Co., 1036.  
 Thomsen, J., 710, 715, 718, 1036, 1061, 1101, 2386, 2432, 2441, 2456, 2487, 2498, 2499, 2506, 2507.  
 Thomsen, P., and W. van Dam, 2579.  
 Thomsen, T., 197, 242.  
 Thomson, *see* *British Thomson-Houston Co.*  
 Thomson, 668, 1414, 1937, 2153, 2190, 2818, 2950.  
 Thomson-Houston Co., *see* *British Thomson-Houston Co.*  
 Thomson, A., *see* T. Carnelley.  
 Thomson, C., 2907.  
 Thomson, E., 1005, 1361.  
 Thomson, E., and J. Callan, 2659, 3018, 3058.  
 Thomson, E., and W. Greene, 1244, 1295.  
 Thomson, G., 2835.  
 Thomson, G., and W. Kemp, 1343.  
 Thomson, G., and G. Watson, 958.  
 Thomson, G., and W. Wemp, 1345.  
 Thomson, J., *see* F. Nathan.  
 Thomson, J., 4, 1019, 1924, 2953.  
 Thomson, J. M., and W. T. Thomson, 1978, 1980, 1981, 1982, 1983, 1985, 1986, 1988, 1990.  
 Thomson, J., and R. Threlfall, 677.  
 Thomson, R., *see* R. Tullock.  
 Thomson, R., 1332.  
 Thomson, T., 2601.  
 Thomson, W., *see* F. Nathan.  
 Thomson, W., *see* J. M. Thomson.  
 Thomson, W., 461, 2727.  
 Thomson, W., and J. Morrice, 425.  
 Thomson, W., W. Severen, and G. Twydross, 1811, 1878.  
 Thorburn, J., *see* J. Sayers.  
 Thoresen, J., and F. Tharaldsen, 850.  
 Thorn, E., 2964, 2981.  
 Thorn, M., *see* *Explosivstoff-Werke Spirilit Gesellschaft.*  
 Thorn, W., 251, 1343.  
 Thorne, C., 314, 660.  
 Thorne, E. G., Westondarp, and C. Pieper, 2673.  
 Thorne, L., and E. Jeffers, 476.  
 Thornley, T., *see* R. Preston.  
 Thornliebank Co., *see* W. Kay.  
 Thornthwaite, W., 1101, 1104, 1911.  
 Thornton and Rothwell, 2848.  
 Thornton, J., 2757, 2880, 2883, 2888, 2899.  
 Thornton, J., and H. Kuhn, 2896.  
 Thornton, J., and C. Rothwell, 2718, 2767, 2888, 2892, 2920.  
 Thorp, E., *see* S. Trotman.  
 Thorp, W., *see* E. Chapman.  
 Thorp, W., 1086.  
 Thorpe, C., and O. Dougan, 2596.  
 Thorpe, J., *see* F. v. Darbishire.  
 Thorpe, J., *see* W. Perkin.  
 Thorpe, P., and L. Jones, 2385.  
 Thorpe, T., 718, 1019, 1335, 2398, 2434.  
 Thorpe, T., and L. Jones, 2432, 2456.  
 Thorpe, T., and J. Rodger, 1722.  
 Thorpe, T., and A. Tutton, 710, 718.  
 Thorssell, C., 927, 932, 1073.  
 Thorssell, C., and H. Lunden, 788, 898, 900, 925, 1006.  
 Thouret, 2808.  
 Thrane, V., 724, 853, 921, 926.  
 Threlfall, R., *see* J. Thomson.  
 Threlfall, R., 677, 714, 715.  
 Threlfall, R., J. Brearley, and J. Allen, 1019, 1035.  
 Thresh, J., 389.  
 Thrift, H., 2916.  
 Thron, H., 2390.  
 Throp, T., 2911.  
 Thrupp, E., 1004.  
 Thum, A., 710.  
 Thum, E., 1394.  
 Thunderbolt, E., 2729.  
 Thurber, *see* E. Harrison.  
 Thurber, C., *see* J. Stevens.  
 Thurber, C., 2686, 2688.  
 Thurber, C., and C. Schaefer, 2717.  
 Thurgau, *see* H. Muller-Thurgau.  
 Thurlow, 2527.  
 Thurlow, E., 2727.  
 Thurlow, N., 2517.  
 Thurston, C., 2782, 2783.  
 Thwaite, J., and W. Herapath, 2472.  
 Thwaites, J., 1075.  
 Thwig, C., 2386.  
 Thwing, C., 1019, 2432, 2456.  
 Thyss, J., 1217, 1239.  
 Tice, I., 1600, 2981.  
 Tice, W., 2604.  
 Tichanowitsch, T., 1600, 1864, 1865, 1866.  
 Tichborne, 2793.  
 Tichborne, C., 2793.  
 Tickle, T., 2463.  
 Tidcombe, G., *see* J. Scoffern.  
 Tiede, E., *see* H. Baker.  
 Tiede, E., 677, 692, 695.  
 Tiede, E., and E. Domeke, 692.  
 Tiedel, E., *see* P. Ploss.  
 Tieghem, P. van, 341, 344.  
 Tiemann, *see* Schulz-Tiemann.  
 Tiemann and Haarmann, 242.  
 Tiemann, F., 2515, 2522, 2777.  
 Tiemann, F., and W. Haarmann,

251.  
 Tiemann, F., and C. Preusse, 84.  
 Tiemann, F., and F. Semmler, 2523.  
 Tiemann, H., 56.  
 Tienen, W. van, 1307.  
 Tiffany, 293.  
 Tiffany, H., 101, 105.  
 Tiffeneau, M., see E. Fourneau.  
 Tilden, S., 677.  
 Tilden, W., see K. Armstrong.  
 Tilden, W., 2515, 2789.  
 Tilghman, A., 277.  
 Tilghman, B., 315, 1044.  
 Tilghman, R., 1011, 1300.  
 Tillberg, E., 213, 303, 315.  
 Tiller, F., L. Benzinger, and R. Meyer, 2694.  
 Tiller, F., O. Benzinger, and R. Meyer, 2577, 2586.  
 Tillmans, J., 1335.  
 Tilloch, A., 96.  
 Tilmans, J., and W. Suttloff, 1334.  
 Tinar, D., 695.  
 Tiner, D., 695.  
 Timiriazeff, C., 395.  
 Timin, 1073.  
 Timin, F., 695, 1072.  
 Timmel, F., 2697, 2981.  
 Timmermann, J., 2436, 2466.  
 Timmermans, 2503, 2606.  
 Timmermans, J., 2409, 2500.  
 Timmermans, T., 2398.  
 Timmis, I., see W. Walenn.  
 Timmis, I., 2700.  
 Timofejeff, G., 1019.  
 Timofejow, W., 2463.  
 Timpe, H., see J. Jurgens.  
 Timpe, H., 2648, 2651.  
 Timpe, H., and J. Jurgens, 239, 2763, 2765.  
 Tindall, H., 2706, 2711.  
 Timford, J., 2794.  
 Tingberg, O., 303.  
 Tingle, A., see F. Babington.  
 Tingle, A., 677, 964.  
 Tingle, J., 2483, 2515.  
 Tingle, J., and E. Gorsline, 2522.  
 Timiole, 930.  
 Tiorillo, L., 2683.  
 Tirelli, see Morpurgo.  
 Tirson, see Weed.  
 Tischenko, V., 2440.  
 Tischenowitsch, see Lapschin.  
 Tischenowitz, 1846.  
 Tischborne, R., 677.  
 Tischenko, G., and H. Plauson, 2484, 2485, 2487.  
 Tisell, C., 2947, 2948.  
 Tisell, J., and E. Willaume, 2967.  
 Tissandier, G., 2827.  
 Tisser, C., see A. Behal.  
 Tissier, C., and P. Magnier, 2579, 2755.  
 Tissier, J., see J. Saint-Rene.  
 Tissier, J., see J. de Saint-Rene.  
 Tisser, L., see V. Grignard.  
 Tissier, L., 2456.  
 Tissier, L., and V. Grignard, 2443.  
 Tistschenko, W., 2458, 2777.  
 Titanine, Ltd., and P. Bowles, 1739, 1786.  
 Titlestad, N., 987.  
 Titoff, A., 1097.  
 Titschke, F., 2960.  
 Tittinger, E., 1019, 1033.  
 Tixier, A., and L. Rambaud, 2548, 2591.  
 Tjaden-Modderman, R., 1346.  
 Tobler, H., 960.  
 Toch, M., 2566.  
 Tod, W., 1340.  
 Todaro, A., 493.  
 Todd, 1252.  
 Todd, A., and J., 2701.  
 Todd, B., 1011.  
 Todd, E., see A. van Winkle.  
 Todd, E., 2387, 2488, 2491, 2496, 2580, 2809.  
 Todd, J., see A. Todd.  
 Todtenhaupt, F., 2644, 2648, 3067.  
 Tonges, C., 2561.  
 Toepler, M., 1019.  
 Toepler, P., 2451, 2473.  
 Tofam, C., 931.  
 Tofam, R., 917.  
 Tolhurst Machine Works, 1968, 1969, 1970, 1972, 2119, 2120.  
 Tolhurst, C., and A. Goldthwaite, 456.  
 Tollens, see Allen.  
 Tollens, see Brown.  
 Tollens, see Krueger.  
 Tollens, see Lindsey.  
 Tollens, see Pfeiffer.  
 Tollens, see H. Suringar.  
 Tollens, see Wheeler.  
 Tollens, see Widsoe.  
 Tollens, 12, 50, 242, 390.  
 Tollens and Krober, 249.  
 Tollens and Suringar, 242.  
 Tollens and Wigand, 1801.  
 Tollens, B., see E. Allen.  
 Tollens, B., see K. Boddener.  
 Tollens, B., see C. Browne.  
 Tollens, B., see W. Cross.  
 Tollens, B., see R. Dmochowski.  
 Tollens, B., see W. Ellett.  
 Tollens, B., see O. Faber.

- Tollens, B., see O. v. Faber.*  
*Tollens, B., see E. Flint.*  
*Tollens, B., see R. Gans.*  
*Tollens, B., see W. Goodwin.*  
*Tollens, B., see A. Guenther.*  
*Tollens, B., see R. Hauers.*  
*Tollens, B., see M. Ishida.*  
*Tollens, B., see W. Kirchner.*  
*Tollens, B., see W. Kroeber.*  
*Tollens, B., see J. Lindsay.*  
*Tollens, B., see J. Lindsey.*  
*Tollens, B., see F. Mann.*  
*Tollens, B., see W. Mayer.*  
*Tollens, B., see J. Murumov.*  
*Tollens, B., see T. Pfeiffer.*  
*Tollens, B., see A. Schoene.*  
*Tollens, B., see C. Schulze.*  
*Tollens, B., see W. Stone.*  
*Tollens, B., see H. Suringar.*  
*Tollens, B., see R. Tromp de Haas.*  
*Tollens, B., see C. Wehmer.*  
*Tollens, B., see F. Weld.*  
*Tollens, B., see H. Wheeler.*  
*Tollens, B., see J. Widsoe.*  
 Tollens, B., 11, 57, 130, 131, 136,  
 137, 138, 171, 238, 274, 365, 403,  
 478, 2420, 2430, 2440  
 Tollens, B., and R. Dmochowski,  
 274.  
 Tollens, B., and R. Fittig, 2512.  
 Tollens, B., and J. Kroeber, 274.  
 Tollens, B., and Krueger, 238.  
 Tollens, B., and W. Stone, 288.  
 Tolloczko, S., 1000.  
 Tolman, R., 32.  
 Tolman, R., and A. Stearn, 32.  
 Tolmer, A., and A. Rochereau, 2576  
 Tomassi, T., and D., 243, 262, 263  
*Tommasi, D., see T. Tommasi.*  
 Tommasi, D., 718, 2515.  
 Tommassi, N., 688, 848, 932, 1006B.  
 Tomlinson, 213, 413.  
 Tomlinson, C., 411.  
*Tomlinson, F., see A. Job.*  
*Tomlinson, G., see M. Ewen.*  
 Tomlinson, G., 205, 660, 664, 2423.  
*Tomlinson, J., see T. Terel.*  
*Tomlinson, J., see S. Wheatley.*  
*Tompkins, H., see W. Dreaper.*  
*Tompkins, H., see E. Farmer.*  
 Tompkins, H., 3024.  
 Tompkins, H., and W. Crombie, 102.  
 Tompkins, J., 303.  
 Tondl & Co., 2708, 3060.  
 Tone, F. T., and The Carborundum  
 Co., 1281.  
 Toniolo, G., 893.  
 Toniolo, 677, 709, 946.  
 Tonkin, J., 448, 1604, 1610, 3083,  
 2005, 2047.  
 Tooker, G., 2718.  
 Tootell, C., 2683.  
 Tooth, W., and J. Rooker, 1075.  
 Topf, G., 478.  
*Topham, see G. Stearn.*  
*Topham, C., see C. Stearn.*  
 Topham, C., 2560, 2635, 2636, 3074.  
 Toplis, W., 2424.  
 Topp, G., 2953.  
*Toretscher, A., see R. Punzl.*  
 Torgue, J., 2717.  
 Torii, S., 2624.  
 Torley, C., 2543.  
 Torley, C., and O. Matter, 696, 711,  
 2492.  
 Tornau, N., 2579.  
 Torrance, T., and J. Hervell, 303.  
 Torrilhon, J., 328.  
 Toryelli, M., 2756.  
*Toth, see J. Eder.*  
 Toth, J., 410.  
*Toth, V., see J. Eder.*  
 Totten, 2943.  
 Tottingham, W., 524.  
 Toubert, F., 2905.  
 Touche de la, 452.  
 Toulouse, 2902.  
 Tour du Breuil, de la, 1019.  
*Tourette, H., see H. LaTourette.*  
 Tournachon, F., 2867.  
 Tournoux, A., and F. Schmalz,  
 2907.  
*Tower, G., see A. Dean.*  
 Tower, O., 677, 695, 712  
 Towers, 1339.  
 Towler, 2801, 2805, 2820, 2823, 2826,  
 2833, 2835.  
 Towler, J., 2809, 2839, 2857, 2861,  
 2867, 2868.  
 Towler, M., 2832  
 Towler, S., 2820.  
 Towndrow, 2694.  
 Towne, A., 2585.  
 Townsend, A., 2706.  
 Townsend, C., 2777.  
 Townsend, C., and A. Rollason,  
 2574, 2611.  
 Townsend, J., 1301, 2702.  
 Townsend, J., and J. Walker, 1030.  
 Townsend, P., and F. Maywald,  
 2759, 2760.  
*Trachoniotowski, P., see L. Pissar-*  
*shewski.*  
 Traer, R., 2914.  
*Traetta-Mosca, see Paterno.*  
*Traetta-Mosca, F., see E. Paterno.*  
 Traine & Hellmers, and F. Branden-  
 burg, 1006.

- Traine & Hellmers, H. Wever, and F. Brandenburg, 912.  
 Trainer, E., 292, 315.  
 Trainer, E., *see* A. Claus.  
 Trambies, J., 2468.  
 Trampeduch, A., *see* A. Seyberlich.  
 Trannoy, R., *see* A. Malignon.  
 Transparent Cellulose Products Co., 2581, 2790.  
 Trapani, E., 1715.  
 Trapp and Munch, 2855.  
 Trappes, H., 2603.  
 Traquair, J., 413, 414, 415.  
 Traube, *see* Miethe.  
 Traube, F., *see* H. Riesenfeld.  
 Traube, H., 1019.  
 Traube, I., 2466, 2721, 2754, 2777.  
 Traube, J., *see* G. Bodlander.  
 Traube, J., 406, 1722, 2431, 2477, 2489, 2496, 2503.  
 Traube, J., and G. Bodlander, 2414, 2477.  
 Traube, J., and O. Neuberg, 2456.  
 Traube, M., 677, 1061.  
 Traube, W., 71, 72, 946, 1126, 2636, 2651, 2653.  
 Traube, W., and A. Biltz, 944, 946.  
 Traun, H., 958, 2694, 2715, 2718.  
 Trautwein, J., 2470.  
 Trautz, M., 692, 1004, 1259, 1261.  
 Travers, 715.  
 Travers, W., *see* W. Ramsay.  
 Travis, W., 2601.  
 Travitz, P., *see* A. Seyewitz.  
 Trayne, J., 2718.  
 Treadwell, C., 2727.  
 Treadwell, F., 1055, 1056.  
 Treadwell, F., and A. Koch, 1056.  
 Treadwell, W., 1055.  
 Treboux, O., 404.  
 Trecul, A., 127, 348.  
 Tredup, C., 3077.  
 Treese, W., 1836.  
 Trego, F., 1072, 1078.  
 Tregurtha, J., 2600.  
 Tremain, C., 449.  
 Tremain, F., 2508.  
 Trench, G., *see* C. Faure.  
 Trench, G., *see* S. Mackie.  
 Trench, G., 1872, 2544, 2961, 2962.  
 Trenckmann, B., *see* E. Trenckmann.  
 Trenckmann, E., and B., 2738.  
 Trenemen, W., 2861, 2865.  
 Tern, E., and F. Sichel, 3083.  
 Trested, R., *see* J. Kendall.  
 Trested, R., 2687, 2702.  
 Trey, H., 1301.  
 Tribe, A., *see* J. Gladstone.  
 Tribe, A., 1887, 2700.  
 Tribouillet, 195.  
 Tribouillet and de Basauncele, 2033, 2668.  
 Tribouillet, V., and L. de Besauncele, 1423, 2037, 2038, 2067, 2058, 2674, 2676.  
 Triër, 2793.  
 Trierenberg, R., 84.  
 Triester Keusschal-Fabrik, *see* Erste Triester, etc.  
 Trigou, L., 1875.  
 Trigwell, J., and E. Bowden's Patents Syndicate, Ltd., 2698.  
 Trillat, A., 677, 950, 2435, 2443.  
 Trillat, A., and R. Cambier, 2414.  
 Trillat, J., 2435.  
 Trimble, H., 2491, 2492, 2498, 2580.  
 Triplett, R., 2694, 2712.  
 Triplex Safety Glass Co., *see* W. Lytleton.  
 Tridlex Safety Glass Co., 2496, 2578, 2683, 2694.  
 Trippe, E., 292.  
 Trippe, W., 315.  
 Trivelli, A., 2592, 2897, 2900.  
 Trivick, S., 806.  
 Trobach, K., *see* L. Virneisel.  
 Trobridge, 2916.  
 Trobridge, A., 837.  
 Trocquet, C., 1784, 2767, 2777.  
 Troger, J., *see* R. Otto.  
 Troller, W., 1079.  
 Trojanowsky, P., 47.  
 Trolle, *see* Pompe.  
 Tromblee and Pauli, 1171.  
 Tromblee, A., 1076.  
 Trombles, A., *see* J. Marsden.  
 Tromp de Haas, R., and B. Tollens, 161.  
 Tromsdorff, 2472.  
 Tronchon, A., 1618, 2981.  
 Tronel, J., 2583, 2690.  
 Tronquoy, M., 2847.  
 Troost, *see* Deville.  
 Troost, L., *see* H. Deville.  
 Troost, L., and P. Hautefeuille, 1018, 1794.  
 Troost, L., *see* H. St. Cl. Deville.  
 Troost, L., 718, 1019, 1619.  
 Tropp, J., 2515.  
 Trotman, H., 1628.  
 Trotman, S., 341, 344.  
 Trotman, S., and S. Pentecost, 598.  
 Trotman, S., and E. Thorp, 611.  
 Trotter, A., *see* W. Butterfield.  
 Trotter, H., 2718.  
 Troussures, P. de, *see* J. Philipps.  
 Trovman, J., 2739.  
 Trowbridge, A., 1761.



- Troye, E., 700.  
 Troye, E., and E. Edwin, 700.  
 Truchelut, J., 2827, 2859, 2860.  
 Truchelut, T., and A. Rochereau, 2744, 2748, 2883.  
 Truchot, 2628, 2652.  
 Truchot, P., *see* A. Teraud.  
 Truchot, P., 1043, 1056, 1072, 1077, 1208, 1215.  
 Trugblood, M., 2707, 2708.  
 Truelle, A., 2424.  
 Trueman, A., 1011, 1101, 1104.  
 Trueman-Wood, 2921.  
 Trütschler-Falkenstein, 1809.  
 Truffl, F., *see* G. Bertoni.  
 Truninger, E., *see* Liechti.  
 Truninger, P., 677.  
 Trutzer, E., *see* J. Meyer.  
 Trutzer, E., 3083.  
 Tryller, H., 458.  
 Trzcinski, W., 2777.  
 Tsakalotos, D., 2409, 2998.  
 Tsakalotos, D., and B. Papacon-stantinou, 2525.  
 Tscheghjaew, W., 2456.  
 Tschermak, 1019.  
 Tschermak, A., 125.  
 Tschernischoff, 2780, 2781.  
 Tscheschner, E., 2574.  
 Tschirch and Will, A., 243.  
 Tschirch, A., 390, 2592.  
 Tschirch, A., and H. Shirasawa, 2517.  
 Tschudy, F., 1276.  
 Tschugaeff, A., 2515.  
 Tschugaeff, L., 2458, 2490, 2524.  
 Tschumanow, S., 97.  
 Tsukamoto, M., 2458.  
 Tucker, *see* Cellon Ltd.  
 Tucker, J., 677.  
 Tucker, S., *see* H. Moody.  
 Tucker, S., 924, 936.  
 Tucker, S., and H. Read, 677, 848, 924.  
 Tucker, S., and Y. Wang, 677, 917.  
 Tucker, T., *see* Cellon, Ltd.  
 Tuckfield, C., and W. Garland, 2556.  
 Tulasne, L., 348.  
 Tuebben, P., *see* M. Friedlander.  
 Tünnermann, 1567.  
 Tüschel, G., 2591.  
 Tufts, C., 677.  
 Tufts, J., 1063, 1091.  
 Tulley, *see* Johnson.  
 Tulley, 2817.  
 Tullis, J., *see* W. Harrocks.  
 Tulloch, *see* Scott.  
 Tulloch, J., 2867.  
 Tully, 2816.  
 Tungay, S., 1276, 1518.  
 Tungay, S., and G. Haughton, 1003, 1370.  
 Tunmann, O., 2511.  
 Tunny, 2821.  
 Tunny, J., 2798, 2850.  
 Turati, G., 2920.  
 Turgard, H., 1899, 2625, 2648, 2673.  
 Turigo, 2068.  
 Turin, L., 2658.  
 Turin, M., 2657.  
 Turk, G., 312.  
 Turkus, B., 930, 936.  
 Turnbull, J., 2842, 2902.  
 Turnbull, N., *see* H. Morris.  
 Turner, A., 2703.  
 Turner, A., *see* J. Hewitt.  
 Turner, B., 2443.  
 Turner, H., 303.  
 Turner, J., *see* British Dyes, Ltd.  
 Turner, J., 936.  
 Turner, R., 226.  
 Turner, T., 2608.  
 Turner, W., and C. Bissett, 2437.  
 Turns, J., 2767.  
 Turpin, 1693, 2069.  
 Turpin, E., 702, 718, 721, 1636, 2943, 2948, 2962, 2965, 2979, 2981, 2994.  
 Turrentine, J., 677.  
 Turton, F., 2842.  
 Turton, S., *see* J. Holden.  
 Tuson, R., 1084.  
 Tuteur, E., and W. Goulborne, 2604.  
 Tuttle, J., 3049.  
 Tutton, A., *see* T. Thorpe.  
 Tutwiller, C., 677.  
 Tweedie, M., 2081.  
 Twining, N., 2928.  
 Twisselmann, N., 1033.  
 Twynam, T., 2994.  
 Twycross, G., *see* W. Thomson.  
 Tyborowski, E., *see* L. Blech.  
 Tyborowski, E., *see* D. Rosenblum.  
 Tyborowski, E., *see* J. Rosenblum.  
 Tye, T., 2592.  
 Tyer, H., and J. Helm, 2535.  
 Tyers, C., J. Hedley, and The United Alkali Co., 1030.  
 Tyler, C., 454, 455.  
 Tyler, F., 488, 492.  
 Tyler, W., 2738.  
 Tymstra, S., 2406.  
 Tyndall, 39.  
 Tyndall, J., 1061.  
 Tyrer & Co., *see* Cellon, Ltd.  
 Tyrer, C., 1335, 2789.  
 Tyrer, D., 1447, 2490, 2493, 2503.  
 Tyrer, T., *see* Cellon, Ltd.  
 Tyrer, T., and Co., Ltd., *see* Cellon Ltd.

- Tyrer, T., 1639, 1697, 2416.  
 Tyrer, T., and F. Gosling, 2411.  
 Tyson, H., 2411.  
 Tyson, H., and M. Schönberg, 2411.  
 Tytow, A., 2979.  
 Tzarn, 2857.  
 Ubaldini, J., *see* S. DeLuca.  
 Ubertin, J., 92.  
 Uchatius, F., 1599, 1818, 1863.  
 Udal, J., 2974.  
 Udransky, *see* Ladislaus.  
 Udranzky, L. v., 2455, 2477.  
 Uebbing, P., 1310. •  
 Uebel, 816, 817.  
 Uebel, C., *see* O. Dieffenbach.  
 Uebel, C., 730, 817, 985, 986, 990, 1300.  
 Uebel, C., and Chemische Fabrik Rhenania, 815, 2503.  
 Uelsmann, H., 957. •  
 Uffelman, G., 2475.  
 Uffelman, J., 2455, 2475.  
 Uffenheimer, F., *see* F. Wellebu.  
 Ugalde, N., 731.  
 Uhde, 910.  
 Uhde, C., 945, 2788.  
 Uhl, J., 1061.  
 Uhlend, W., 455. •  
 Uhler, E., 113.  
 Uhlhorn, E., 2515.  
 Uhlmann, P., 1075.  
 Ujhely, H., *see* J. Field.  
 Ujhely, H., and J. Field, 2477.  
 Ulex, G., 2473.  
 Ullgren, J., *see* J. Wallberg.  
 Ullik, F., 239, 434.  
 Ullman, 2691.  
 Ullmann, A., 289.  
 Ullmann, F., 2788.  
 Ullmann, H., 315.  
 Ullstein, F., 2601.  
 Ulpiani, 926.  
 Ulpiano, C., 677, 936.  
 Ulsch, K., 735, 736.  
 Ulysse, P., 3880.  
 Ulzer, F., 2464, 3008.  
 Ulzer, F., and H. Seidel, 315.  
 Umbach, J., 664, 2067.  
 Umitakara, Z., 2394. •  
 Umney, J., 2515, 2794.  
 Umpherston, W., 303.  
 Unbreakable Film Syndicate, Ltd., 2899.  
 Underwood, J., 2835.  
 Underwood, W., 2722.  
 Underwriters Bureau, 2757.  
 Ungania, E., 1900. •  
 Ungar, J., 2904. •  
 Unger, E., *see also* E. Junger.  
 Unger, E., and R. Jaeger, 289.  
 Ungerer, 293.  
 Ungerer, A., 1391.  
 Ungerer, M., 2880, 2883.  
 Ungnad, U., 225.  
 Union Co., 2426.  
 Union Carbide Co., 2399, 2907.  
 Union Photographique Industrielle, 2863.  
 United Alkali Co., *see* H. Broadhurst.  
 United Alkali Co., *see* F. Brown.  
 United Alkali Co., *see* A. Carey.  
 United Alkali Co., *see* H. Cosway.  
 United Alkali Co., *see* R. Davidson.  
 United Alkali Co., *see* J. Morton.  
 United Alkali Co., *see* Peachey.  
 United Alkali Co., *see* P. Pritchard.  
 United Alkali Co., *see* J. Raschen.  
 United Alkali Co., *see* C. Tyers.  
 United Alkali Co., 1070, 1204, 1341, 1350.  
 United Alkali Co., and M. Muspratt, 2994.  
 United Fast Color Eyelet Co., 2094, 2704, 2706, 2709, 2711.  
 United Railway and Trading Co., *see* T. Hutchinson.  
 U. S. Industrial Alcohol Co., *see* A. Backhaus.  
 U. S. Industrial Alcohol Co., 2500, 2509.  
 U. S. Phonograph Co., 2738.  
 Unna, 2781, 2792.  
 Unruh, A. v., 2534, 2590, 2691, 2721, 3004.  
 Unwin, J., 2727, 2728.  
 Upton, F., 2708.  
 Upton, H., 1042.  
 Upward, A., J. Bannehr, and T. Dale, 1206.  
 Urbain, A., *see* E. Fremy.  
 Urbain, E., *see* A. Maignon.  
 Urbain, E., *see* A. Varley.  
 Urbain, J., *see* E. Bronnert.  
 Urbain, V., *see* E. Fremy.  
 Urban, *see* Bronnert.  
 Urban, J., *see* M. Fremery.  
 Urbasch, O., 1024.  
 Urech, F., *see* C. Hell.  
 Urech, F., 427.  
 Urfer, C., *see* L. Duparc.  
 Urfer, C., *see* P. Wehger.  
 Urie, J., 2805.  
 Urmelzer, A., *see* C. Page.  
 Urquhart, E., *see* R. Urquha.  
 Urquhart, R., and E., 2727.  
 Ursprung, A., 402.  
 Usber, F., 2437.

- Usher, F., and B. Rao, 677.  
 Usher-Walker, and C. Sohn, 2746.  
 Usines, see *Les Usines Electriques de la Lonsa*.  
 Usueli, E., see O. Kopp.  
 Utheim, 2994.  
 Utheim, S., 2905, 2997.  
 Utley, J., 2559.  
 Utz, 736, 2571, 2572, 2609, 2758, 2659.  
 •  
 Vacuelin, L., see A. Fourcroy.  
 Vadner, C., 1074.  
 Vahlkamp, E., see Roggenkämper.  
 Vail, R., 1023.  
 Vains, de, see A. Regmouf de Vains.  
 Vains, A. de, 618.  
 Vains, A. de, and J. Peterson, 273, 606, 618.  
 Vajdafy, A. v., 1443, 1973.  
 Valadon, J., see A. Badoil.  
 Valenta, E., see J. Eder.  
 Valenta, E., 303, 2388, 2827, 2851, 2852, 2856, 2857, 2858, 2872, 2874, 2875, 2878, 2902, 2904, 2916, 2921, 3059.  
 Valentin, A., and J. Zerreiss, 2011.  
 Valentiner, & Schwarz, 983, 985.  
 Valentiner, 818, 819, 820, 821, 822, 823, 826, 829.  
 Valentiner, F., see G. Gontard.  
 Valentiner, F., 983, 985, 2441, 2480.  
 Valette, R., 1900, 2568, 2626.  
 Valette, R., and C. Vic, 2655.  
 Vallande, H. de, 2407.  
 Vallat, R., 2418.  
 Vallec, C., 2444.  
 Vallee, E., see A. Hielbronnér.  
 Vallendar, O., 2717.  
 Valles, V., 2637, 2651.  
 Valley Iron Works Co., 1068.  
 Vallod, see Lessere.  
 Valson, C., 1061.  
 Van Arsdale, G., 1310.  
 Van der Beck, 2807.  
 Van Beek, 2869.  
 Van Berchem, P., see A. Bonna.  
 Van der Bogaert, 1632.  
 Van den Bosch, A., see F. Van den Bosch.  
 Van den Bosch, F., and A. and O. Müller, 571.  
 Van Breukelen, M., 677.  
 Van Brunt, C., 677, 688.  
 Van Buggenboudt, R., 662.  
 Vance, C., and J. Vetter, 2651, 3061.  
 Vance, S., 2422.  
 Vandal, M., 2896.  
 Van Dam, W., see P. Thompson.  
 Van Deinse, J., and M. Reiseger, 454.  
 Van Denbergh, F., 1300.  
 Vandenberghe, A., 1037.  
 Van Den Hoek, B., see F. Schaetz.  
 Vanderkleed, C., and J. Brewer, 660, 2655.  
 Van der Plaats, J., 678.  
 Vanderpoel, F., 2666.  
 Vanderpol, J., 678.  
 Vandervelde, A., 2460.  
 Vandervelde, G., 678.  
 Vandervoort, H., see E. Lecocq.  
 Vanderweyde, 2860.  
 Vandevelde, 2472.  
 Van Deventer, C., see J. Van't Hoff.  
 Van Deventer, C., 678, 951.  
 Van Dorp, W., see S. Hoogewerff.  
 Van Eudert and Koenig, 1310.  
 Vangel, A., 2668.  
 Vangel, L., 2730.  
 Van Gelder, A., 1505.  
 Vangenechten, L., 2636.  
 Van Gieson, 2782.  
 Vanguard Mfg. Co., 2745.  
 Van Haarst, J., 2460.  
 Van Hise, 726.  
 Van den Hoff, E., 2416.  
 Vanino, L., 678, 778, 961, 1068, 1699, 1710.  
 Vanlohe, J., 619.  
 Van Marle, D., see A. Hough.  
 Vanoni, R., see M. Moulin.  
 Van Oordt, G., see F. Haber.  
 Van Oordt, G., 900.  
 Vanoutryve, F., & Co., see Societe F. Vanoutryve & Co.  
 Van Ryn, L., 2418.  
 Vansteenbergh and Bauzil, 1328.  
 Vanstone, E., 2515, 2534.  
 Van't Hoff, J., 806, 2405, 2442, 2487, 2509.  
 Van t Hoff, J., and C. Van Deventer, 806.  
 Van Tieghem, 195.  
 Van Vriesland, A., 3072.  
 Van der Waals, J., 1061.  
 Van Wessem, J., 268, 276, 303.  
 Van Wessen, 303.  
 Van Westrum, L., 226.  
 Van Wisselingh, 243.  
 Vanzetti, L., 1019.  
 Van Zuylen, P., see V. Hassreidter.  
 Van Zyl, J., 926.  
 Varentrapp, F., 1600.  
 Varley, F., 947.  
 Varley, J., 2660, 2676.  
 Varnnes, see *Le Normant des Varnnes*.  
 Varrentrap, 215, 2472.  
 Varrentrapp, F., 195.

- Varrentrapp, F., and H. Will, 945.  
*Vary, see G. Guérin-Vary.*  
 Vasilieff, A., 736.  
*Vasseur, J., see M. Houard.*  
*Vasseur, J., see L. Obert.*  
 Vaton, E., and A. Zuaznavar, 1031.  
 Vaubel, W., 678, 718, 1019, 2369, 2571.  
 Vaucamps, V., 2875.  
 Vaughn, 2194.  
 Vaughan, V., 539.  
*Vauquelin, see Bouillon-Lagrange.*  
*Vauquelin, see A. Fourcroy.*  
 Vauquelin, L., 4, 1019.  
 Vautier, A., 2638.  
 Vautin, C., 704.  
*Vavon, see M. Guichard.*  
 Vavon, G., 2520.  
 Vaygouny, M., 3004.  
 Vaysse, J., 2566.  
 Vecchi, B. de, 2780.  
*Veit, T., see E. Wedekind.*  
 Veitch, F., and M. Donk, 2569, 2572.  
 Veitch, F., and J. Merrill, 303.  
 Veitch, G., 1360.  
 Veith, 678.  
 Veith, A., 678.  
 Velasquez, L., 2601.  
 Velden, A. v., 2778.  
*Velen, see Graflich von Lundsberg-Velen.*  
 Veley, V., 678, 714, 953, 1322, 2483, 3024.  
 Veley, V., and J. Manley, 721, 952, 953, 954, 1318, 1546.  
 Velpeau, de, 2788.  
*Velvrid Co., see W. Reid.*  
 Velvrid Co., 2394.  
 Velvrid Co., Ltd., and J. Hawkins, 2606.  
 Venable, F., 1334.  
 Vender, V., 1424, 1440, 1460, 2054, 2390, 2651, 2754, 2944, 2961, 2963.  
 Vending, 2973.  
*Vennin, A., see V. Martin.*  
 Venot, 2788.  
 Venter, O., 232, 3067.  
 Ventske, K., 476.  
 Verbeek, P., 1241.  
*Verbiese, E., see F. Verbiese.*  
*Verbiese, F., see A. Bourel.*  
 Verbiese, F., and E., 451.  
 Verda, A., 2642.  
 Vere, C. de, 2589.  
 Verefel, L., 2628, 2651.  
*Verein für Cellulosefabrikation, see Oesterreichischer Verein für Cellulosefabrikation.*  
 Verein Chemischer Fabriken, 985, 986, 997, 1342.  
 Verein Chem. Fabriken, and A. Clemm, 1101.  
*Verein Chemischer Fabr. in Mannheim, see A. Clemm.*  
 Verein Chem. Fabrik. Mannheim, 709, 897, 938, 939, 940, 961, 964, 1101, 1102, 1103, 1108, 1116, 1120.  
*Verein für Chemische Industrie, see F. Collischon.*  
 Verein f. Chemische Industrie, 292, 2503, 2997, 3000, 3061.  
 Verein f. Chem. Ind. Frankfurt, 3000, 3045.  
 Verein für Chemische Industrie in Mainz, 28, 569, 2637, 3006, 3008, 3019, 3047.  
 Verein Chemische Werke Aktien Gesellschaft, 1293.  
 Verein der Spiritus-Fabrik, 458.  
 Vereinigte Chininfabriken Zimmer & Co., 2467, 2526.  
 Vereinigte Dampfziegeleien-Industrie, Aktien Gesellschaft, 1280.  
 Vereinigte deutsche Gaswerke Aktien Gesellschaft, 1040.  
 Vereinigte Eisenhütten u. Maschinenbau Aktien Gesellschaft, 1875.  
 Vereinigte Gelatine und Gelatoid-Folien und Flitterfabrik, 2688, 2765, 2785.  
 Vereinigte Glanzstoff Fabriken, 74, 90, 92, 2493, 2636, 2642, 2644, 2651, 2654, 2660, 2689, 3017, 3018, 3031, 3042, 3064, 3069, 3071, 3075.  
 Vereinigte Gummiwaren Fabriken, 2777, 2778.  
 Vereinigte Gummi-Waaren Fabriken Harburg-Wien vorm. H. Memier, and N. Reithoffer, 2703.  
 Vereinigte Kohl-Rottweiler Pulverfabriken, 337, 338, 1784, 1876, 1884, 2066, 2078, 2251, 2252, 2947, 2964, 2967, 2979, 2984.  
 Vereinigte Kunstseidefabriken Aktien Gesellschaft, 89, 149, 217, 1895, 2007, 2026, 2601, 2625, 2626, 2636, 2638, 2640, 2644, 2651, 2682, 2751, 2880, 3054, 3067, 3070, 3071, 3073, 3077.  
 Vereinigte Kunstseidefabriken, Aktien Gesellschaft and K. Schniter, 2007.  
 Vereinigte Spielwarenfabriken, 2730.  
 Vereinigte Tonwarenerwerke, 1274, 1977, 1978.  
 Verel, 2748.  
 Veress, 2851.

- Verge, 696.  
 Verge, A., 2947, 2961, 2966, 2979.  
 Verhave, T., 3070, 3073.  
 Verity, A., 2836.  
 Verkadi, P., 3001.  
 Verley, 451.  
 Verley, A., *see* A. Malignon.  
 Verley, A., 2533.  
 Verley, A., and F. Bölsing, 2422, 2460.  
 Vesley, A., E. Urbain, and A. Feige, 2531.  
 Verlinden, H., 2420.  
 Vermeesch, J., *see* J. Foltzer.  
 Vermeesch, J., 89, 2625, 2636, 2640, 2644, 2647, 2653.  
 Vermeesch, J., and H. Monge, 89.  
 Vermeesch, J., and F. Scheys, 89.  
 Vermorel, V., and E. Dantony, 1036, 2491.  
 Vernaz, P., 2717.  
 Vermede de Corneillan, J., 2923.  
 Verneuil, A., 1061.  
 Vernier, M., 2827, 2832.  
 Vernon, G., 2561.  
 Vernon, H., 1019, 1061, 1101.  
 Vernon, R., 1330.  
 Vernon, W., *see* Wortley.  
 Vernon-Harcourt, 2495.  
 Verry, J., *see* H. Boistesselin.  
 Verona Chemical Co., *see* A. Wack.  
 Verschaeffelt, J., 2456, 2503.  
 Versmann, F., and A. Oppenheim, 4.  
 Verstraet, 1242.  
 Verstraet, L., 1011.  
 Verstraet, L., and C. Schliebs, 1222.  
 Versar, F., *see* J. Igersheimer.  
 Vescier, G., *see* F. Desbrière.  
 Vessel, von, 2901.  
 Vessel, H. v., 1636.  
 Vessier, H., and A. Wilbaux, 303.  
 Vetillard, F., 379.  
 Vetillart, 119, 168, 179.  
 Vetter, J., *see* C. Vance.  
 Vetterlein, R., 1229.  
 Verwertung Inländischer Produkte G. m. b. H., 2424.  
 Vezes, M., 678, 693, 2571, 2572.  
 Vialleix, P., and F. Perrin, 1386.  
 Vibrans, F., *see* W. Hale.  
 Vibrans, G., 461.  
 Vicker, 2815.  
 Vickers, *see* Iocce Proofing Co.  
 Vickers, *see* J. McKechnie.  
 Vickers, Ltd., *see* J. McKechnie.  
 Vickers, Ltd., and J. McKechnie, 3047, 3050.  
 Victor, A., 2890.  
 Victoroff, C., *see* F. Botassi.  
 Vidal, C., 453.  
 Vidal, L., 303, 2827, 2830, 2838, 2904, 2920.  
 Vie, G., *see* R. Valette.  
 Vie, G., 2923.  
 Viehoever, A., 532.  
 Viehoever, A., I. Chernoff, and C. Johns, 501, 532.  
 Viehoever, E., *see* E. Stanford.  
 Vieille, 2324, 2345, 2347, 2348, 2349.  
 Vieille, P., *see* M. Berthelot.  
 Vieille, P., *see* E. Sarrau.  
 Vieille, P., 4678, 1632, 1650, 1651, 1652, 1653, 1654, 1655, 1659, 1688, 1716, 1721, 1899, 2969.  
 Vieira, H., 1872.  
 Vient, B., 2579.  
 Vierlel, H., *see* E. Marquardt.  
 Viesi, S., 957.  
 Vietinghoff-Scheel, 905.  
 Vietinghoff-Scheel, K. v., 693, 703, 720.  
 Vieweg, 3053.  
 Vieweg, W., *see* H. Wichelhaus.  
 Vieweg, W., 5, 79, 134, 135, 154, 218, 219, 220, 221, 235, 380, 616, 2645, 2653, 3055.  
 Vig, C., *see* A. Anderson.  
 Vigna, A., 2439.  
 Vignes, *see* L. Bethisy.  
 Vignes, E., and I. Fouchard, 2700.  
 Vignes, M., *see* H. Lagneau.  
 Vignolo-Lutati, F., 327.  
 Vignon, *see* Odet.  
 Vignon and von Hauff, 51.  
 Vignon, L., 17, 41, 50, 65, 67, 111, 113, 118, 119, 122, 128, 137, 154, 162, 168, 170, 172, 214, 224, 518, 1658, 1661, 1667, 1706, 1710, 1759, 1866, 1900, 1901, 1903.  
 Vignon, L., and I. Bay, 1667, 1708, 1861, 1866.  
 Vignon, L., and L. Casella & Co., 45, 214.  
 Vignon, L., and F. Gerin, 169, 1667, 1848, 1866, 2988.  
 Vignon, L., and P. Sisley, 1667, 1880, 2625.  
 Vigouroux, R., 2788.  
 Vilan, P., and La Soie Artificielle de Nord, 2636.  
 Vilette, 2886.  
 Villain, P., *see* Soc. Soie Artificielle du Nord.  
 Villard, P., 678, 711, 721, 1061.  
 Villaume, E., *see* J. Tisell.  
 Ville, G., 714.  
 Ville, J., and W. Mestrezat, 142, 202.  
 Villecholle, Franck de, 2814, 2817,

- 2826, 2838, 2865.  
*Villedieu, C.*, see *H. Bittner*.  
*Villedieu, C.*, *F. Lebert*, and *A. Coumbary*, 336, 2651.  
*Villemaire, L.*, 2911.  
*Villette*, 2868.  
*Villiard, P.*, 2516.  
*Villiers, A.*, 418, 2430.  
*Villiers, E.*, 2679.  
*Villiger, V.*, see *A. Baeyer*.  
*Villon, A.*, 2414.  
*Vilstrup, W.*, 1056.  
*Vinassa*, 1034.  
*Vincent*, see *Comoy-Vincent*.  
*Vincent*, 2876, 2789.  
*Vincent, A.*, 2556.  
*Vincent, C.*, 1019, 2758.  
*Vincent, C.*, and *B. Delachanal*, 185, 1848.  
*Vincent, M.*, 4, 2658.  
*Vincent, W.*, 2582.  
*Vincntini, G.*, 1019.  
*Vincntini, G.*, and *D. Omodei*, 1019.  
*Vindrier, P.*, 2636.  
*Vines, S.*, 395.  
*Vinogradof, A.*, 2788.  
*Vint*, see *Alexander*.  
*Vint, W.*, see *G. James*.  
*Viola, B.*, and *R. Moldenke*, 2405, 2406.  
*Violin*, 2826, 2848.  
*Virchow, R.*, 326.  
*Virneisel, F.*, see *L. Virneisel*.  
*Virneisel, F.*, 428.  
*Virneisel, L.*, and *F. K. Trobach*, and *A. Cords*, 428.  
*Vis, G.*, 1006A.  
*Viscoloid Co.*, 2667.  
*Viscose Development Co.*, see *C. Cross*.  
*Viscose Development Co., Ltd.*, 3047, 3051, 3057.  
*Viscose Development Co.*, and *J. Morford*, 3059, 3082.  
*Viscose, Ltd.*, and *C. Cross*, 3068.  
*Visser, H.*, 736.  
*Viswanath, B.*, *T. Row*, and *P. Ayyangar*, 464, 474.  
*Viswink, A.*, 2011.  
*Vitak, E.*, see *J. Stoklasa*.  
*Vitali, D.*, 1294, 2453, 2924.  
*Vitoria, E.*, 2436, 2461.  
*Vitrebert, E.*, 6.  
*Vittenet, H.*, 2515, 2625, 2636, 2646, 2651.  
*Vivario, R.*, 2409.  
*Vivian*, 1066.  
*Vivian, A.*, see *L. Grote*.  
*Vivien, H.*, 456.  
*Vivier, I. du*, 1901, 2622, 2623, 2626, 2636.  
*Vloeberghs, E.*, 2418.  
*Voecklinghaus & Kerkenbusch*, 2703, 2708.  
*Voelcker & Co.*, 1362.  
*Voelker, W.*, 2595, 2646.  
*Völkens*, 459.  
*Völkner, B.*, 2409.  
*Völtz, W.*, 2412.  
*Völtz, W.*, and *W. Dietrich*, 2411.  
*Voerkelius*, 212, 315.  
*Vogdt, K.*, see *V. Kohlschuetter*.  
*Vogel*, see *Nash*.  
*Vogel*, see *Steinhart*.  
*Vogel*, 100, 389, 413, 2805, 2814, 2826, 2860.  
*Vogel and Cadoret*, 2625.  
*Vogel, A.*, 68, 413, 478, 1019, 1061, 1617, 1794, 2032, 2453, 2817, 2857, 2858.  
*Vogel, E.*, 2496, 2748, 2828, 2838, 2840, 2845, 2855, 2873, 2892, 2899, 2902, 2903, 2908, 2911.  
*Vogel, E.*, *M* and *G. Walker*, and *J. Bonnaud*, 2911.  
*Vogel, F.*, 1101.  
*Vogel, H.*, see *C. Heisch*.  
*Vogel, H.*, 79, 478, 1624, 1928, 2451, 2705, 2798, 2802, 2804, 2806, 2808, 2811, 2815, 2817, 2823, 2825, 2826, 2827, 2828, 2831, 2833, 2835, 2836, 2838, 2842, 2843, 2844, 2846, 2847, 2858, 2869, 2870, 2871, 2874, 2875, 2876, 2883, 2887, 2912, 2915, 2921.  
*Vogel, J.*, see *Lehmann*.  
*Vogel, J.*, 292, 315, 678, 812, 1036.  
*Vogel, L.*, see *Soc. anon. L. Vogel*.  
*Vogel, L.*, see *Societa Anonima L. Vogel*.  
*Vogel, L.*, see *Soc. Vogel*.  
*Vogt, A.*, 812.  
*Vogt, A.*, and *C. Wichmann*, 814, 985.  
*Vogt, C.*, 1241.  
*Vogt, J.*, 1020, 1047.  
*Vogt, R.*, 2591.  
*Vogt, S.*, 1019.  
*Vohl, H.*, 1588, 1843, 1848, 1849, 2383, 2573.  
*Vohl, M.*, 2714.  
*Voight*, 2852, 2855, 2659.  
*Voight, C.*, 292.  
*Voigt, A.*, see *Patronsfabrik*.  
*Voigt, A.*, 1705, 1882, 2012, 2247, 2757, 2758, 2923, 2979, 3022.  
*Voigt, H.*, 2887.  
*Voigt, K.*, 1705, 2672.  
*Voigt, P.*, 2762.  
*Voigt, V.*, 2093.

- Voillemier, 2788.  
 Voisson, 3070.  
 Voitel, K., 315.  
 Voiturin, J., 2717.  
 Voland, F., *see* *Societe C. Garnier, and F. Voland*.  
 Volberg, H., 1218, 1271.  
 Volckel, C., 2500.  
 Volckmann, C., 2721.  
 Volhard, J., 1061.  
 Volkhonskii, E., 806.  
 Volkman, 2973.  
 Volkman, F., 2586.  
 Volkmer, O., 2748.  
 Vollberg, H., 1281.  
 Vollenbruch, 2851, 2852, 2856.  
 Voller, A., 2494, 2495.  
 Vollin, H., *see* *J. Bell*.  
 Vollman, 2569.  
 Vollmer, K., 2601.  
 Volney, C., 678, 752, 814, 1820, 2408, 2943, 2954, 2962, 2963, 2979, 2986.  
 Volpert, F., 183, 2967.  
 Voltz, *see* *Societe Voltz, etc*.  
 Voltz, Weiss & Co., 2899.  
 Volz, C., 828, 986.  
 Volz, T., *see* *M. Baltegay*.  
 Voneche, J., and Soc. Comte and Mabut, 2610.  
 Vongerichten, E., and F. Müller, 43.  
 Voogt, L., 2519.  
 Voorhees, E., 678.  
 Voorhout, A. van, 1308, 2778.  
 Vorbrodt, *see* *Breilshuh & Vorbrodt*.  
 Vorsak, *see* *Hammer & Vorsak*.  
 Vorstehcr, P., 2700.  
 Vorster, *see* *Stassfurter, etc.*  
 Vorster & Grüneberg, 949, 960, 1313.  
 Vorster, M., 1276.  
 Vortmann, G., and C. Padberg, 1019.  
 Vose, J., and W. Owens, 2900.  
 Vosmar, 2751.  
 Vosmayer, A., 2778.  
 Vossen, L., 3070, 3081.  
 Voswinkel, A., 2032, 2252.  
 Votocek, 127.  
 Votocek, E., 239.  
 Votocek, E., and C. Kranz, 1867.  
 Vouloud, H., *see* *P. Nicolardot*.  
 Vournasos, A., 1878.  
 Voyle, 2813, 2816.  
 Vries, H. de, 390, 2252.  
 Vrij, *see also* *De Vrij*.  
 Vrij, J. de, 1570.  
 Vris, E. de, 2923.  
 Vrooman, N., and R. Kirkland, 303.  
 Vry, J. de, 1817.  
 Vuagnat & Gagel, *see* *Societe Vuagnat & Gagel*.  
 Vaugnat and Gagel, 2671, 2679.  
 Vuigner, E., 1081.  
 Vuillaume, P., *see* *E. Garnier*.  
 Vulcanized Fibre Co., 104.  
 Vulquin, E., and M. Entat, 1328.  
 Vuylsteke, H., 456.  
 Vylder, G. de, 2832.  
 Waage, P., *see* *C. Guldberg*.  
 Waals, *see* *J. Van der Waals*.  
 Wach, G., 1061, 1101.  
 Wach, H., *see* *A. Scherbius*.  
 Wachendorf, F., 2591, 2592, 2904.  
 Wachter, L., 2715.  
 Wack, A., 2530.  
 Wack, A., and Verona Chem. Co., 2530, 2549.  
 Wackenroder, 1347.  
 Wackenroder, B., 1019.  
 Wackenroder, H., 1061.  
 Wacker, L., 406, 1302, 1380.  
 Waddell, M., 2636, 3067, 3078.  
 Waddell, R., *see* *Gentley*.  
 Waddell, W., 2979.  
 Wade, E., 2694, 2696.  
 Wade, J., 2503, 2509.  
 Wade, J., and R. Merriman, 2420, 2503.  
 Wadsworth, F., 2727.  
 Wadsworth, G., *see* *R. Griffith*.  
 Wadsworth, G., 2253, 2970.  
 Waentig, P., and W. Gierisch, 257, 303, 371.  
 Waffel, J., 2901.  
 Wagener, G., 850.  
 Wagenet, H., 2702.  
 Wagenmann, Seybel & Co., 1073.  
 Waggaman, W., 1204, 1225, 1283.  
 Waggett, A., 2751, 2896.  
 Wagishauser, K., 2582.  
 Wagner, 2822.  
 Wagner, A., 710, 714, 2642, 2646, 3056.  
 Wagner, B., 289, 315.  
 Wagner, C., 2598.  
 Wagner, E., 2439, 2607, 3014.  
 Wagner, E., and A. Saytzeff, 2451.  
 Wagner, F., 678.  
 Wagner, G., 2439, 2456.  
 Wagner, G., G. Ertzchikowsky, and A. Ginsberg, 2523.  
 Wagner, G., and S. Herne, 2713.  
 Wagner, G., S. Moycho, and F. Zienkowski, 2523.  
 Wagner, G., and A. Saytzeff, 2486, 2498.  
 Wagner, H., 401, 2596.  
 Wagner, L. von, 466.

- Wagner, M., 2400, 2981.  
Wagner, P., 735.  
Wagner, R. v., 263, 727, 953, 1592, 1858.  
Wagner, R., and C. von Radinger, 2599, 3076.  
Wagner, T., 205, 391, 451, 660.  
• Wagner & Co., see *Maschinenfabrik*.  
Waite, C., 2460, 3082.  
Wahl, 2758.  
Wahl, E. von, 2780.  
Wahl, R., see *Wahl-Henius Research Laboratory*.  
Wahl, W., 1628, 2657.  
Wahl-Henius Research Laboratory, and R. Wahl, 481.  
Wahlen, J., 2710.  
Wahlström, A., 303.  
Wabel, C., 2636.  
Waite, C., see E. Ryon.  
Waite, C., 594, 2614, 3031, 3051, 3070, 3071, 3072, 3073.  
Waite, C., and J. Hedin, 303, 563, 504.  
Waitz, 2809, 2814.  
Wakely, G., 162.  
Walbaum, see *Bertram*.  
Walbaum, H., see J. Bertram.  
Wallbridge, J., 2717.  
Waldack, see *Rotier*.  
Waldack, 2819.  
Waldack, C., 2814, 2850.  
Waldbauer, J., 984, 985, 995.  
Waldeck, 2808, 2817, 2904.  
Walden, H., 2705.  
Walden, P., 1061, 1101, 2383, 2386, 2387, 2409, 2490, 2498, 2503, 2508.  
Walden, P., and M. Centnerszwer, 1058, 1061, 2405, 2503.  
Walden, P., and T. Horlacher, 2463.  
Walden, W., 2609.  
Walen, E., 3049.  
Walenn, W., and I. Timmis, 74.  
Walisz, A., see S. Gniewasz.  
Walke, W., 1838.  
Walker, see *Cumming*.  
Walker, see *Mork*.  
Walker, see *Usher-Walker*.  
Walker, A., see A. Campbell.  
Walker, C., 953.  
Walker, F., see H. Lee.  
Walker, E., 2738.  
Walker, F., see H. Sherman.  
Walker, G., see E. Vogel.  
Walker, G., see M. Walker.  
Walker, G., 308, 1061, 2388, 2695, 2696.  
• Walker, G., F. Sharp, and T. Stevens, 2561.  
Walker, H., see R. Macadam.  
Walker, H., 2393, 2394, 2488, 2983, 3024.  
Walker, J., see H. Sherman.  
Walker, J., see J. Townsend.  
Walker, J., see H. Walter.  
Walker, J., 1004, 2500.  
Walker, J., and C. Wilkinson, 2619.  
Walker, M., see E. Vogel.  
Walker, M., and G., 2746, 2911.  
Walker, T., 1080.  
Walker, T., and J. Carter, 1072.  
Walker, W., see L. Briam.  
Walker, W., see G. Eastman.  
Walker, W., see H. Mork.  
Walker, W., 5, 303, 315, 813, 2892, 2899, 2991, 3003, 3004, 3042, 3046, 3052.  
Walker, W., and G. Eastman, 2918.  
Walkmer, 2838.  
Wall, 2809, 2851.  
Wall, la, see C. La Wall.  
Wall, E., 2805, 2853, 2856, 2860, 2865, 2871, 2873, 2874, 2880, 2883.  
Wall, E., and Kayser, 2873.  
Wall, E., and M. Wieland, 2880.  
Wall, Dr. E. J. X.  
Wall, R., 2751, 2920.  
Wallace and Wassmer, 853.  
Wallace, E., 2841, 2844, 2848, 2867.  
Wallace, J., 575.  
• Wallace, R., 1130, 1391, 2912.  
Wallace, R., and G. Reynaud, 303.  
Wallace, R., and E. Wassmer, 684, 686, 690, 848, 923, 929, 944.  
Wallace, W., 1019.  
Wallach, L., 232, 3067, 3072.  
Wallach, O., 2515, 2524, 2527, 2528, 2529.  
Wallach, W., 2713.  
Wallberg, J., and J. Ullgren, 303.  
Waller, A., and H. Wiegand, 1207.  
Waller, C., see J. Braunstein.  
Waller, C., 1784, 1836, 2985.  
Waller, E., 2414.  
Wallerant, F., 2515.  
Wallich, G., 2841, 2907.  
Wallin and Ekstrom, 298.  
Wallin, E., 660.  
Wallin, H., 213.  
Wallin, J., 315.  
Wallis, 1600, 1702.  
Wallner, J., 2609, 2647.  
Wall Paper Mfg., Ltd., see D. Sutherland.  
Walpole, G., see A. Glenny.  
Walpole, G., 1773.  
Walsem, G. van, 2903.  
Walsh, 292, 1278.



- Walsh, G., 303.  
 Walsh, J., 315, 2979.  
 Walsh, M., 1232, 1391.  
 Walter, A., 1025, 1033, 1034.  
 Walter, F., *see* G. Leroy.  
 Walter, H., and J., 2835.  
 Wlter, J., *see* C. Lehmann.  
 Walter, J., and C. Lehmann, 843.  
 Walter, K., 1011, 1019, 1022.  
 Walter, K., and E. Boeing, 1212, 1242.  
 Waltr, K., and E. Boenig, 1207.  
 Walter, L., *see* R. Sieber.  
 Walters, J., 2552.  
 Walters, W., 2619.  
 Walther, *see* Sieber.  
 Walther, G., *see* H. Lange.  
 Walther, J., 2458.  
 Walther, R. von, 315, 860, 1032.  
 Walther, T., 3004.  
 Walton, F., 2590, 2600.  
 Walton, J., 303, 2094.  
 Walls, I., *see* K. Lieber.  
 Walz, 185.  
 Walz, J., 1101.  
 Walzl, R., 2849.  
 Wandolleck, 2867.  
 Wandrowsky, H., 303.  
 Wang, Y., *see* S. Tucker.  
 Wanklyn, A., and W. Cooper, 710.  
 Wanklyn, J., *see* L. Playfair.  
 Wanklyn, J., 2551.  
 Wanklyn, J., and W. Cooper, 678.  
 Wannag, A., *see* O. Spinsig.  
 Wannag, A., *see* P. Spinsig.  
 Wante, *see* L. Dewolf-Wante.  
 Warburg, 243.  
 Warburg, E., 678.  
 Warburg, E., and G. Leithauser, 678, 693.  
 Warburg, E., and E. Regener, 710, 714.  
 Warburg, J., 2751.  
 Warburg, O., 2486.  
 Warburton, A., *see* C. Stanley.  
 Warchavsky, M., *see* L. Jaloustre.  
 Warcollier, G., 447.  
 Ward, *see* British Aeroplane Varnish Co.  
 Ward, *see* Groves.  
 Ward, 1007, 2593.  
 Ward, H., 348.  
 Ward, J., *see* British Aeroplane Varnish Co.  
 Ward, J., 2602, 2688, 2689, 2835.  
 Ward, M., 187.  
 Ward, M., 692.  
 Ward, P., 2493.  
 Ward, P., and E. Gregory, 2493.  
 Ward, T., *see* S. Groves.  
 Warder, R., 2503, 2504.  
 Wardle, *see* W. Read.  
 Wardle & Davenport, *see* W. Read.  
 Wardley, G., 2835.  
 Wardlow, W., *see* J. Smythe.  
 Wardrowsky, 2852.  
 Warfel, R., *see* W. Noyes.  
 Waring, E., 2788.  
 Warlich, F., 2685, 2752, 2865.  
 Warnant, A., *see* F. Honnay.  
 Warne, H., and C. Godfrey, 2579, 2746.  
 Warnecke, L., 1626.  
 Warneke, L., 537.  
 Warner, 2818, 2819.  
 Warner, A., 712.  
 Warner, J., 1061.  
 Warner-Powrie, 2880.  
 Warnerke, 2813.  
 Warnerke, L., 2802, 2813, 2838, 2840, 2844, 2845, 2846, 2887, 2902, 2920.  
 Warnford, G., *see* G. Lock.  
 Warnke, J., *see* T. Montgomery.  
 Warr, W., *see* Calico Printers Association.  
 Warren, E., and J. Holden, 2710.  
 Warren, H., 678, 912, 1019, 1639, 1658, 1891, 1892.  
 Warren, I., and Dental Manufacturing Co., 2740.  
 Warren, J., *see* B. Molloy.  
 Warren, J., and F. Cloudman, 303.  
 Warren, R., 1628.  
 Warren, W., 1072.  
 Warth, *see* Erhwein.  
 Warth, F., and D. Darabsett, 464.  
 Warth, K., *see* G. Erhwein.  
 Wartmann, 1584.  
 Waser, 900.  
 Waser, B., 1004.  
 Washan, W., 2892.  
 Washburn, E., 1003.  
 Washburn, F., 678, 869, 916, 928, 929, 933, 936, 937, 1006B.  
 Wasicky, R., 303.  
 Wasmer, E., *see* R. Wallace.  
 Wassermann and Jaeger, 72.  
 Wassermann, M., 72.  
 Wassiljeff, A., 2458.  
 Waterhouse, 2581.  
 Waterhouse, J., 2869, 2870, 2872, 2888, 2911, 2912, 2916.  
 Waterhouse, M., 2491.  
 Waterkeyn, J., 2417.  
 Waterlow, P., and J. Ceddes, 2911.  
 Waterman, H., *see* J. Bdeseken.  
 Waterman, H., 447.  
 Waterman, L., 2601, 2619.

- Waterman, S., see T. Blair.*  
*Waters, A., see C. Reihle.*  
*Waterson, J., see W. Ramsay.*  
 Watkins, A., 2892.  
 Watkins, C., 2727.  
 Watkins, E., and W. Screeton, 2563.  
 Watremez, E., 618.  
*Watson, see Davey.*  
 Watson, 2826.  
 Watson, C., 1074.  
*Watson, G., see G. Thomson.*  
*Watson, H., see H. Blair.*  
 Watson, H., 1252, 1338\*.  
 Watson, H., and J., 303.  
*Watson, J., see H. Watson.*  
 Watson, J., 1050, 1056, 2081.  
 Watson, P., 2715.  
 Watson, W., 417, 1034.  
 Watt, 292, 493, 494, 2618.  
 Watt and Burgess, 292.  
 Watt, A., 2807.  
 Watteyne, M., 2980.  
 Watteyne, V., and S. Stassart, 2338.  
 Watts, J., 2697.  
 Watts, O., 1321.  
*Waure, B., see O. Belleter.*  
 Wawrzyniak, O., 2584, 2606.  
*Wayler, J., see J. Grolea.*  
*Wayne, B., see L. Deijz.*  
*Weare, R., see T. Morris.*  
 Weare, R., 958.  
 Weatherby, C., 1063, 1099.  
 Weaver, 1630.  
*Weaver, J., see C. Holley.*  
 Weaver, V., 933, 936.  
*Weaver, W., see W. Allen.*  
 Webb, 2808.  
 Webb, A., 2807.  
*Webb, H., see A. Holley.*  
 Webb, S., 34.  
 Webb, T., 1088, 1361, 1369.  
*Weber, see Blieberger.*  
 Weber, 67.  
 Weber and Cross, 3042.  
 Weber, A., 2781, 3081.  
*Weber, C., see I. Frankenburg.*  
*Weber, C., see G. Von Georgievic.*  
 Weber, C., 33, 1630, 1639, 2066, 2804, 2988, 3078.  
 Weber, C., and A. Cairns, 3081.  
 Weber, C., and C. Cross, 3006.  
 Weber, C., and I. Frankenburg, Ltd., 2558.  
*Weber, H., see C. Ellis.*  
*Weber, H., see H. Stokes.*  
 Weber, H., 4\*, 1112, 1124, 1382, 2366, 2404, 2454.  
*Weber, J., see E. Mueller.*  
 Weber, J., 724.  
*Weber, K., see O. Weber.*  
*Weber, O., see V. Fishburn.*  
*Weber, O., see I. Frankenburg.*  
 Weber, O., and K., 850.  
 Weber, P., 928, 932.  
 Weber, R., 714, 718, 721, 953, 1019, 1061, 1101, 1124, 1125, 1126, 1245, 1256, 1304.  
 Weber, W., 2592.  
 Webster, C., 9.  
 Webster, G., 2903, 2904.  
 Webster, I., 2861.  
 Webster, J., 811, 986.  
*Webster, M., see E. Gaue.*  
 Webster, M., 315.  
 Weckwarth, E., and M. Hoeft, 2763.  
 Wedekind and Co., 1301.  
 Wedekind, E., 1294, 2509.  
 Wedekind, E., and T. Veit, 935.  
 Wedekind, R., 2625.  
 Wedekind, R., and Co., 1027, 1084.  
 Wederhake, 2645.  
 Wedge, 1072, 1079.  
*Wedge, U., see W. Kee.*  
 Wedge, U., 1072, 1074, 1076, 1086, 1191, 1223, 1239, 1262, 1271, 1283, 1292.  
 Wedge, U., and F. Eustis, 1086, 1092, 1094.  
 Wedger, W., 2807.  
 Wedgwood, E., 2918.  
 Wedgwood, J., 2740.  
 Wedgwood, T., 2797.  
 Wedorf, 3061.  
 Weeber, R., 2606, 2607, 3060.  
 Weed and Tirrson, 1019.  
 Weed, E., 2405.  
 Weedon, W., 2542.  
 Weedon, W., and F. I. du Pont de Nemours Powder Co., 2542.  
 Weegmann, R., 2431.  
 Weeks, C., 1300, 1310.  
 Weeks, H., 678.  
 Weekes, 2808.  
 Weems, J., 956.  
*Weeren, see F. Weeren.*  
*Weeren, F., see J. Weeren.*  
 Weeren, F., and I. Weeren, 1027.  
 Weeren, J., and F., 1019, 1027.  
 Weertz, M., 79, 1873, 2636.  
 Wegelin, A., and Aktien Gesellschaft f Russfabrikation, 315.  
*Wegeroth, see Kohle.*  
 Wegscheider, R., 2458.  
 Wegscheider, R., and M.\* Furcht, 2500, 2507.  
 Wegscheider, R., and L. Ripper, 2504.  
 Wegscheider, R., and F. Zmerzlikar,

3033.  
*Wehenkel*, see *Schippang & Wehenkel*.  
*Wehmer*, C., 402.  
*Wehmer*, C., and B. Tollens, 403.  
*Wehner*, H., 2557.  
*Wehrhahn*, B., 1757.  
*Wohrheim*, O., see *W. Moldenhauer*.  
*Weibel*, A., 2708.  
*Weiblen*, C., 2596.  
*Weichardt*, W., see *E. Abderhalden*.  
*Weichelt*, C., 227.  
*Weichert*, C., 2703.  
*Weidenmüller*, W., and Beer, 2765.  
*Weidhaas*, G., 2740.  
*Weidig*, H., 2742.  
*Weidig*, H., and R. Remmey, 751, 838.  
*Weidmann*, S., and H. Schweizer, 2500.  
*Weigand*, W., see *E. Buchner*.  
*Weigel*, A., 2597.  
*Weigelt*, C., O. Saare, and L. Schwab, 461.  
*Weigert*, 2782.  
*Weigert*, C., 2782, 2783, 2784.  
*Weightman*, J., 2914.  
*Weigl*, J., 2416.  
*Weil*, 195, 1893.  
*Weil*, H., 1778.  
*Weil*, L., 446.  
*Weilberg*, C., 269, 290.  
*Weiler-Ter-Meer*, see *Chem. Fabr. vorm. Weiler-Ter-Meer*.  
*Weiler-ter-Meer*, 2893.  
*Weiluc*, see *Soc. Weiluc*.  
*Weimarn*, 1036.  
*Weimarn*, P. von, 31, 68, 107, 108, 111, 129, 1035, 2671, 2757.  
*Weinboeck*, G., 690.  
*Weindel*, A., see *C. Hansen*.  
*Weindel*, A., see *H. v. Keler*.  
*Weindel*, A., 2778.  
*Weingaertner*, E., see *A. Gultbier*.  
*Weingaertner*, E., 430.  
*Weingartshofer*, 2801.  
*Weinheim*, E., 2608.  
*Weinmann*, 99, 945.  
*Weintraub*, E., see *G. Lunge*.  
*Weintraub*, G., 920.  
*Weirman*, A., 2367.  
*Weise*, J., 3004.  
*Weise*, J., F. Reiche and A. Barth, 3005.  
*Weiser*, A., and M., 335, 2764.  
*Weiser*, H., see *W. Henderson*.  
*Weiser*, H., and G. Wightman, 3022.  
*Weiser*, M., see *A. Weiser*.  
*Weiser*, S., and A. Zeitschek, 239.  
*Weiske*, 2867, 2886.  
*Weiske*, H., 36, 348.  
*Weiske*, H., and T. Mehlig, 345.  
*Weiske*, K., B. Schulze, and Flechsig, 348.  
*Weiskopf*, A., see *K. Sorge*.  
*Weismann*, C., see *W. Bentley*.  
*Weiss*, see *Societe Voltz*.  
*Weiss*, 1638, 1952.  
*Weiss*, A., 2907, 2920.  
*Weiss*, E., see *J. Foltzer*.  
*Weiss*, H., 664.  
*Weiss*, J., 225, 228.  
*Weiss*, P., 1534.  
*Weiss*, R., 602, 619, 2403, 2763.  
*Weissberg*, J., see *C. Engler*.  
*Weissenberger*, G., 2985.  
*Weitenkampf*, C., 2480.  
*Weith*, A., see *L. Redman*.  
*Weith*, W., see *V. Merz*.  
*Weith*, W., 943.  
*Weitz*, L., 2526, 2528.  
*Weitzenbock*, R., see *H. Schroetter*.  
*Weizmann*, 389, 2488.  
*Weizmann*, C., see *A. Friedl*.  
*Weizmann*, C., see *W. Perkin*.  
*Weizmann*, C., 2307, 2530.  
*Weizmann*, C., and The Clayton Aniline Co., 2526.  
*Weizmann*, C., and G. Hamlyn, 2397.  
*Weizmann*, C., and D. Legg, 2446.  
*Welbel*, B., and S. Zeisel, 239.  
*Welch*, H., 1204, 1287, 1292, 1305.  
*Weld*, F., J. Lindsey, W. Schnelle, and B. Tollens, 315.  
*Weld-Blundell*, C., 2961.  
*Weldert*, R., 315.  
*Weldon*, K., 227.  
*Weldon*, L., 226, 3067.  
*Weldon*, W., 1030, 1229, 1310.  
*Wellcome*, H., F. Carr, and F. Pyman, 2485.  
*Wellea*, F. and F., and F. Uffenheimer, 958.  
*Wellensick*, F., 315.  
*Weller*, see *Bindley*.  
*Weller*, A., see *W. Robinson-Bindley*.  
*Weller*, C., 2679.  
*Welles*, E., and C. Mitchell, 678.  
*Welles*, E., and W. Shoudy, 678.  
*Wellesley*, see *Saunders*.  
*Welling*, W., see *A. Starr*.  
*Welling*, W., 2720.  
*Wellington*, 2838.  
*Wellington*, J., see *F. Crane*.  
*Wellington*, J., 2752, 2867, 2869, 2892, 2899.  
*Wells*, A., see *E. Clifton*.  
*Wells*, A., 900, 937, 1032, 1122, 2742, 2743.

- Wells, A., and Ellis-Foster Co., 2779.  
Wells, D., 303.  
Wells, G., and The British Xylonite Company, Ltd., 2717.  
Wells, J., *see* G. Morris.  
Wells, S., *see* O. Kress.  
Wells, S., and V. Edwards, 316.  
Welsch, *see* Grünewald.  
Welsh, J., 315.  
Welshbach, A. von, 903.  
Welshbach, C. von, 2594.  
Welt, I., 2458.  
Welter, 1071.  
Weltzein, 1305.  
Weltzien, C., 718, 2815.  
Weltwart, 2778.  
Welwart, N., 428, 2502.  
Wemp, W., *see* G. Thomson.  
Wend, G., 2528.  
Wendel, A., *see* F. Ehrlich.  
Wendenberg, F., 290.  
Wender, *see* Neumann.  
Wenderoth, F., 2835, 2850, 2861, 2901, 2902.  
Wendin, W., 2961.  
Wendland, M. v., 1635, 2948.  
Wendriner, 897.  
Wendriner, M., 943.  
Wendt, G., 2525.  
Wenedickt, 1586.  
Wengenroth, *see* Kohl.  
Wenger, P., and C. Urfer, 1113.  
Wenghoffer, L., 2395.  
Wenjagit-Gesellschaft, 2778.  
Wenmackers, E., 1108, 1350.  
Wennagel, T., 2778.  
Wentworth, W., and A. Larchar, 303.  
Wentzel, *see* V. Hottenroth.  
Wentzel, 1040, 2873.  
Wentzel, F., 2896.  
Wentzki, O., 1207, 1223, 1260, 1289.  
Wenzel, P., 2600.  
Wenzel, W., 1070.  
Werge, *see* Johnson.  
Werge, J., 2816.  
Werke vorm H. Byk, *see* Chemische Werke vorm H. Byk.  
Werle, F., 303.  
Wernecke, E., 315.  
Werner, A., 678.  
Werner, E., *see* M. Coade.  
Werner, E., *see* K. Shipsey.  
Werner, E., 678, 704, 936.  
Werner, F., 2612.  
Werner, H., 459, 2451.  
Werner, W., 102, 848, 2636.  
Wernicke, A., and W. Pfützing, 2500.  
Wernicke, K., 2763.  
Wertheim, C., 2671.  
Wertheim, H., 1885, 2247, 2672, 2676.  
Werthen, J., 2596.  
Werthen, M., 2899.  
Werther, A. von, 346.  
Wertz, M., 571.  
Wesener, J., 678.  
Wessel, H., 2047.  
Wessel, K., 2563.  
Wessem, *see* J. Van Wessem.  
West, C., 2423, 3061.  
West, G., 2683, 2689.  
West, J., *see* British Dyes, Ltd.  
West, J., and C. Whipple, 2694.  
West, W., 1004, 1391.  
Westad, A., and E. Haag, 303, 660.  
Westdeutsche Thomasphosphatwerke, 693, 704.  
Westerfield, D., and E. Rogers, 2400.  
Westergren, *see* R. Strehlenert.  
Westergren, G., 2652.  
Westergren, J., 1076, 2652.  
Westerling and Staaf, 1586.  
Westerman, J., 2983.  
Western Cartridge Company, and E. Hitch, 804.  
Westfälisch Anhaltische Sprengstoffe Aktien Gesellschaft, 301, 1780, 1784, 2053, 2543, 2552, 2644, 2954, 2962, 2964, 2981, 2982, 2983.  
Westgate, J., 1069.  
Westhoff, F., *see* H. Ost.  
Westhoff, F., 3063.  
Westinghouse Electric Co., *see* J. McCoy.  
Westlake, A., 3082.  
Westmoreland, J., 1051, 1055, 1056.  
Weston, E., *see* W. Crookes.  
Weston, E., 1693, 1899, 2646, 2673, 2676, 2701.  
Westondarp, G., *see* E. Thorn.  
Westphal, C., 1300.  
Westphalische, *see* Westfälisch, etc.  
Westrum, *see* L. Van Westrum.  
Westwood, C., and J. Dunkin, 2721.  
Welcarbonizing, *see* G. Andrew.  
Welcarbonizing, Ltd., *see* T. Rigby.  
Wet Carbonizing, Ltd., *see* Testrup.  
Wetherill, C., 1019, 2471.  
Weller, J., *see* F. Henning.  
Wetz, L., *see* J. Leutkehermoele.  
Wetzel, J., 73, 74.  
Wetzlar, 2788.  
Wever, 453.  
Wever, H., *see* Traine & Hellmers.

- Weyel, R., 2962.  
Weygang, C., 303, 2604, 2659, 2763.  
Weyland, A., see *H. Brandenburg*.  
Weyland, H., see *L. Knorr*.  
Weyler, J., see *J. Grolea*.  
Weymouth, J., see *D. Forbes*.  
Weyner, 2815.  
Weyrich, P., 2625, 2642.  
Whalen, C., see *P. Whalen*.  
Whalen, D., 1063.  
Whalen, P., and C., 2577, 2688.  
Whatmough, W., 2405, 2504, 2506.  
Wheatley, R., 3049.  
Wheatley, S., F. Sheldon, and J. Tomlinson, 1269, 1281.  
Wheeler, A., 250, 264, 303.  
Wheeler, C., 2699.  
Wheeler, H., and B. Tollens, 239, 242.  
Wheeler, O., 78.  
Wheeler, O., and H., and B. Loewenthal, 3081.  
Wheeler, R., see *M. Burgess*.  
Wheeler, W., 2868.  
Wheeling, J., 2920.  
Wheelwright, H., 415.  
Whelpley, J., and J. Storer, 1011.  
Whelpton, C., 2728.  
Whewell, G., 461.  
Whigelt, G., 2565.  
Whipple, C., see *J. West*.  
Whistler, G., see *J. Brown*.  
Whistler, J., see *F. Richardson*.  
Whitcomb, K., see *L. White*.  
Whitcomb, O., 2660, 2679.  
Whitfield, G., 2880.  
Whiting, R., 2904.  
Whitley, J., 955.  
Whitlock, see *Frohling*.  
Whitlock, J., 1019.  
Whitlock, W., 2729.  
Whitman, J., 2738.  
Whitmore, E., 2897.  
Whitney, C., 2730.  
Whitney, D., 2411.  
Whitney, W., and J. Ober, 2659.  
White, A., see *A. Curtis*.  
White, A., see *H. Wood*.  
White, A., 303, 724, 853, 2396, 2412, 2596.  
White, A., and J. Rue, 197, 303, 2396, 2410.  
White, G., 929.  
White, E., 730, 1019, 1033.  
White, G., 1722, 2920.  
White, G., and C. Alden, 2869, 2870.  
White, H., 2907.  
White, J., see *H. Morse*.  
White, J., 304, 812, 838, 986, 2724.  
White, L., and K. Whitcomb, 1517.  
White, M., see *R. Schapphaus*.  
White, S., see *J. Singleton*.  
White, W., see *N. Gargano*.  
White, W., 950, 2883.  
White, W., and A. Rickmann, 949, 1313.  
Whitefield, D., 2619.  
Whitehead, D., and Q. Marino, 78, 320.  
Whitehead, W., and G. Gelstharp, 1344.  
Whitehouse, 2657, 2685.  
Whitehouse, E., 2611.  
Whitehouse, J., 2865.  
Whitehouse, N., and N. Beetlestone, 2407, 2419.  
Whiting, G., 2718.  
Whitmore, A., 2608.  
Whitney and Ober, 9.  
Whitney, E., 486.  
Whitney, W., 5, 27, 1251.  
Whitney, W., and C. Griffin, 2569.  
Whittaker, 813.  
Whittaker, J., 484.  
Whittelsey, T., 2515.  
Whittemore, J., 2741.  
Whittet, R., 2911.  
Whitworth, see *Rudge-Whitworth*.  
Whitworth, 1601.  
Whymper, R., 404.  
Wiard, W., 1321.  
Wiar, E., 2673.  
Wibaux, see *A. Cordonnier-Wibaux*.  
Wibel, F., 2453.  
Wichelhaus, 5.  
Wichelhaus, H., 315, 660, 2778.  
Wichelhaus, H., and W. Vieweg, 222.  
Wichelt, A., and A. Jones, 226.  
Wichers, L., see *S. Seydel*.  
Wichmann, C., see *A. Vogt*.  
Wicke, C., 85, 2738.  
Wicke, W., 434.  
Wickels Metalpapierwerke, 2576, 2583, 2638.  
Wideen, K., and Carbon Hydrate Chemical Co., 2532.  
Widemann, C., 1766, 2473.  
Widmer, H., 2685.  
Widsoe, J., and B. Tollens, 239, 304.  
Wiebe, 1638.  
Wiebe, H., 1019.  
Wiechmann, F., 2764, 2778.  
Wiederhold, 2400.  
Wiedemann, C., 2916.  
Wiedemann, E., 710, 936, 1019, 1061, 2504.  
Wiegand, H., see *A. Waller*.  
Wiegand, H., 454.

- Wiegner, G., 678, 848.  
 Wieland, F., 2717.  
 Wieland, H., 1133.  
 Wieland, M., *see E. Wall*.  
 Wieland, M., 2779.  
 Wielen, P. van der, 2571.  
 Wieler, A., 1094.  
 Wielgolaski, F., 693, 857, 900.  
 Wien, W., *see L. Holborn*.  
 Wienand, F., 2740.  
 Wiener, O., 2883.  
 Wiens, A., 3004.  
 Wierum, 1025.  
 Wierum, H., 1076.  
 Wierzchowski, Z., 468.  
 Wiesebröck, F., 453.  
 Wiesebröck, W., 451.  
 Wiesler, A., 678.  
 Wiesner, *see Cramer*.  
 Wiesner, 242, 498, 610.  
 Wiesner, J., 242, 262, 393, 394.  
 Wiesner, J., and A. Ihl, 262.  
 Wiess, J., 1074.  
 Wigand, *see Tollens*.  
 Wigand, A., 401.  
 Wigg, C., 1011, 1300.  
 Wigger, H., 304.  
 Wiggin, J., 2614.  
 Wiggins, F., 2795.  
 Wightman, G., *see H. Wüster*.  
 Wigmann, R., 2911.  
 Wigner, J., *see C. Marshall*.  
 Wigner, J., 1865.  
 Wieg, *see B. Bache-Wieg*.  
 Wijs, 333.  
 Wikander, E., 730.  
 Wikander, H., *see E. Seybel*.  
 Wilbaux, A., *see H. Vessier*.  
 Wilbaux, A., 660, 2601.  
 Wilberforce, 1722.  
 Wilbuschewitsch, M., 304.  
 Wilcke, M., 2865.  
 Wilcox, J., 2714, 2717, 2718.  
 Wilcox, O., 2363.  
 Wilcox, W., 2992.  
 Wild, J., *see J. Lloyd*.  
 Wild, R., 2598.  
 Wilda, 2922.  
 Wilde, 2811, 2841.  
 Wilde, F., 2814, 2842.  
 Wilde, F., and Gorlitz, 2856.  
 Wilde, F., and S. Stein, 2838.  
 Wilde, H., 2812.  
 Wilde, J., 231.  
 Wilde, M., 1101.  
 Wilde, P. de, 948. •  
 Wildenstein, R., 1050.  
 Wilder, D., 451.  
 Wildman, E., 2574. •  
 Wildridge, G., 298.  
 Wildsmith, J., 466.  
 Wiley, 2258.  
 Wiley, E., 686, 688, 853.  
 Wiley, H., 1879.  
 Wilfarth, H., 714, 735.  
 Wilgolaski, F., and A. Schönherr, 857.  
 Wilhelm, 67.  
 Wilhelm, E., 449.  
 Wilhelmi, A., 917, 1203, 1218, 1280.  
 Wilisch, H., 1280.  
 Wilke, 2470. •  
 Wilke, E., *see G. Bredig*.  
 Wilke, E., 1108.  
 Wilke, W., 1117, 1288.  
 Wilkening, L., *see H. Ost*.  
 Wilkening, W., *see H. Ost*.  
 Wilkes, J., and A. Aunier, 1076.  
 Wilkins, M., and H. Aspinwall, 2979.  
 Wilkinson, 2840.  
 Wilkinson, C., *see J. Walker*.  
 Wilkinson, H., 120.  
 Wilkinson, J., 2640.  
 Wilkinson, J., and Bradford Dyers Assoc., Ltd., 2636.  
 Wilkinson, J., and J. Fitzgerald, 2608, 2720.  
 Wilkinson, W., 2807, 2816, 2838, 2865, 2867, 2868, 2869, 2870, • 2904, 2911.  
 Wilks, J., *see J. Burghoff*.  
 Will, 513, 1807, 1834, 2267, 2325, 2343, 2347, 2350, 2351, 2352, 2353, 2354, 2358, 2361, 2363, 2375.  
 Will & Finck Co., 2713, 2714.  
 Will & Finck Co., and M. Frederick, 2742. •  
 Will, A., *see Tschirch*.  
 Will, H., *see F. Varrentrapp*.  
 Will, H., 945.  
 Will, W., 14, 17, 320, 1415, 1665, 1678, 1704, 1706, 1707, 1716, 1717, 1719, 1750, 1873, 2236, 2275, 2296, 2350, 2355, 2659, 2767.  
 Will, W., and F. Lenze, 1639, 1669, 1710, 1719, 1825, 1845, 1848, 1849, 1851, 1854, 1869.  
 Willaert, E., and L., 2415.  
 Willaert, L., *see E. Willaert*.  
 Willcox, F., *see E. Hasketh*.  
 Willcox, F., 2928. •  
 Willcox, O., 2423.  
 Willemin, 2914, 2915.  
 Willett, M., 1366, 1391, 2836.  
 Willey, D., 2922.  
 Willgerodt, C., and A. Genieser, 2440.

- Williams, 2691, 2840.  
 Williams & Caywood, 2699.  
 Williams, A., see *W. Parkin*.  
 Williams, A., 2596, 2778.  
 Williams, A., and W. Parkin, 2676.  
 Williams, C., 520, 947.  
 Williams, D., see *R. Lavender*.  
 Williams, E., see *A. Allmand*.  
 Williams, E., and M., and C. May, 2586.  
 Williams, F., see *T. Winstanley*.  
 Williams, F., 304.  
 Williams, G., 2836, 2844, 2856.  
 Williams, H., see *Manchester Oxide Co.*  
 Williams, I., 2601.  
 Williams, J., see *A. Healey*.  
 Williams, J., see *A. Kayser*.  
 Williams, J., 77, 660, 2597, 2655, 2703, 2720, 2741, 2867, 2888, 2911, 2920.  
 Williams, K., and W. Ramsay, 945.  
 Williams, L., 2861.  
 Williams, M., see *E. Williams*.  
 Williams, P., see *R. Seligmann*.  
 Williams, P., 1031.  
 Williams, R., 688, 848.  
 Williams, R., J. and A. Churchill, 678.  
 Williams, W., see *T. Carmelley*.  
 Williams, W., see *W. Parkin*.  
 Williams, W., 1640, 2253, 2495, 2682, 2684, 2861, 2922.  
 Williams, W., and North British Rubber Co., 3050.  
 Williamson, see *J. Robinson*.  
 Williamson, 2789.  
 Williamson, A., 1717, 2487.  
 Williamson, B., 304.  
 Williamson, G., 2778.  
 Williamson, R., 2795.  
 Williamson, T., see *R. Moore*.  
 Williamson, W., 2702.  
 Willmot, F., see *F. Norman*.  
 Willock, G., 2568.  
 Willoughby, S., see *M. Finch*.  
 Willoughby, W., see *M. Finch*.  
 Wills, J., see *R. Dunwoody*.  
 Wills, T., 711.  
 Willsie, T., 2875.  
 Willson, T., 931.  
 Willstaetter, 95.  
 Willstaetter, R., 37, 93, 213, 1909, 2498.  
 Willstätter, R., and L. Zechmeister, 76, 93, 94, 202, 210, 211, 256, 299, 304, 370.  
 Willstrop, W., see *E. Mardles*.  
 Wilmot, H., 477.  
 Wilowski, J., see *G. Richter*.  
 Wilsing, H., 1050.  
 Wilson, 2782.  
 Wilson and Prentice, 1618, 1928.  
 Wilson, A., see *W. Dreaper*.  
 Wilson, A., see *R. McCrea*.  
 Wilson, A., 2827, 2918, 3082.  
 Wilson, E., see *W. Atkins*.  
 Wilson, E., 2788, 2822, 2849, 2850.  
 Wilson, F., 1028, 2699.  
 Wilson, H., see *H. Greenish*.  
 Wilson, H., see *J. Wilson*.  
 Wilson, H., 2743.  
 Wilson, J., see *H. Proctor*.  
 Wilson, J., 1011, 1061, 1297, 1877, 2565, 2568, 2962.  
 Wilson, J., and C. Forrest, 2567.  
 Wilson, J., and H. Harris, 2565, 2566, 2567.  
 Wilson, J., and H., and A. French, 1288.  
 Wilson, L., see *Courtaulds, Ltd.*  
 Wilson, L., see *W. Glover*.  
 Wilson, L., 2628, 2636, 2991, 3065, 3071, 3072.  
 Wilson, R., see *A. Dunstan*.  
 Wilson, R., 452, 455, 1369, 2727.  
 Wilson, T., and M. Haff, 689.  
 Wilson, T., see *E. Leak*.  
 Wilson, V., 2717.  
 Wilson, W., see *J. McCrae*.  
 Wilson, W., see *J. Sayers*.  
 Wilson, W., see *R. Sohlman*.  
 Wilson, W., 2487, 2844.  
 Wilson, W., and J. Storey, 2491, 2580, 2615.  
 Wilson Co., 2567.  
 Wilmhurst, E., 2746.  
 Winand, P., 701, 704, 2391.  
 Winchester Repeating Arms Co., 2981.  
 Winckler, see *J. Decker*.  
 Winckler, C., 1256.  
 Wind, G., see *A. Berkaut*.  
 Winderling, G., see *L. Winderling*.  
 Winderling, L., and G., 2739.  
 Windesheim, S., see *Arnstädter, etc.*  
 Windisch, 1019, 1033.  
 Windisch, C., see *E. Sell*.  
 Windisch, K., 2477.  
 Windisch, W., and R. Hasse, 239.  
 Window, 2838.  
 Windsor Co., 3067.  
 Windus, W., 1350.  
 Wingen, J., 664.  
 Wingfield, R., 2723.  
 Wingrave, 2830.  
 Wingrave, J., 2836.  
 Winiwarter, 1694, 1887.

- Winiwarter, J. v., 1589.  
*Winkel, see A. Ten-Winkel.*  
Winkel, 1019.  
Winkelblech, G., 1588.  
Winkelblech, K., 2504.  
*Winkelmann, A., see D. Konowalow.*  
Winkelmann, A., 2432, 2454, 2499,  
• 2506, 2507, 2508, 2509.  
Winkelströter, M., 2688, 2729.  
Winkelströter, M., A. Leisegang, and  
P. Simons, 2729.  
Winkhaus, 2986.  
Winkle, A. van, and E. Todd, 2601.  
Winkler, Crompton, and Howell,  
2658, 2700.  
Winkler, C., 678, 714, 718, 1007,  
1086, 1101, 1104, 1113, 1189, 1304,  
1329, 1529, 2601.  
Winkler, F., 4.  
Winkler, H., 1105.  
Winkler, K., 2660.  
Winkler, L., 678, 692, 712, 714, 1327,  
1335, 2418.  
Winn, 2788.  
Winn, D., 602.  
Winn, G., and A. Bates, 2717.  
Winne, R., 2738.  
*Winninghoff, W., see G. Keyes.*  
Winogradsky, G., 1019.  
Winsborough, R., 2739, 2740.  
Winslow, R., and B. Hart, 1209,  
1211, 1217, 1221, 1251, 1267.  
Winstanlev, D., 2818.  
Winstanley, T., and F. Williams,  
945.  
Winteler, F., 678, 736, 983, 1072,  
1102, 1157.  
Winter, 100.  
Winter, A., 484.  
Winter, H., 315.  
Winter, R., 2574.  
Winter, W., 2824, 3079.  
Winterberg, H., 2515.  
*Winterbottom, G., see L. Lillienfeld.*  
Winterbottom, G., and J. Egerton,  
2602, 3078, 3079.  
Winterfeld, G., 2592.  
Wintermeyer, O., 2899.  
*Winters, J., see H. Sherman.*  
Winterstein, E., 4, 53, 109, 125, 325,  
326, 660.  
Wintersteiner, 2781, 2784.  
Winther, C., 2436, 2515.  
Winthol, A., 316.  
Winton, A., 454.  
Winzler, L., 725.  
Wirgin, G., 2435, 2460.  
Wirth, 606, 2791.  
Wirth, F., 806, 2597.  
Wirth, J., 2677, 2679.  
Wirth, K., 2588, 2720.  
*Wirts, see V. Hollenroth.*  
Wirtz, K., 2504.  
Wischin, G., 1108.  
Wischnegradski, A., 2451, 2474.  
*Wischo, F., see R. Krennmann.*  
Wise, *see Adams.*  
Wise, J., 1062, 1076.  
Wise, W., 2575, 2714.  
Wislicenus and Isachsen, 1086.  
Wislicenus, H., 274, 704, 1061, 1086.  
Wislicenus, H., and G. Buettner,  
44, 57.  
Wislicenus, H., and Kleinstueck M.,  
274.  
Wislicenus, W., 2402.  
Wislicki, F., 1899, 2025.  
Wister, A., 1788.  
*Wita, see H. LeWita.*  
Witham, G., 2114, 2116, 2117.  
Witherbee, O., 2742.  
Witherbee, T., 1632.  
Withers, W., and B. Ray, 1334, 2360.  
Withrow, J., 954.  
Witlich, M., 428.  
Witt, 67, 2628.  
Witt, O., 32, 318, 426, 678, 716, 718,  
869, 1063, 1304, 1639, 2512, 2515,  
2875, 2880, 3063.  
Witt, O., and A. Buntrock, 3078.  
Witt, W., 2572.  
Witte, L., 2689.  
Wittelschoeffler, 2743.  
Wittich, 418.  
*Wittich, C., see K. Birnbaum.*  
Witting, E., 2470.  
Witting, E., and L. Buchner, 2470.  
Wittkowski, C., 2601, 2763.  
Wittmann, C., 239.  
Wittorf, N., 716.  
*Wittorf, F., see W. Ipatjew.*  
Wittstein, 1591.  
Wittstein, G., 2448.  
Witz, 36, 59, 60, 114, 134, 138.  
Witz and Schmidt, 164.  
Witz, A., 1061.  
Witz, G., 40, 59, 112, 122, 158, 159,  
160, 161, 162, 163, 164, 165, 166,  
167, 178, 613, 617.  
Witz, G., and F. Osmond, 167.  
Witzeck, R., 1020.  
Witzleben, von, 2953.  
Wleügel, S., and S. Hennrichsen,  
2430.  
Wocke, 1073.  
Wocke, A., 1072.  
Woegeger, C., 2636.  
Wöhler, 1110.



- Wöhler, F., see H. Deville.*  
 Wöhler, F., 1020, 1061, 1104, 1106.  
 Wöhler, I., and L., and W. Plüdemann, 1106.  
 Wöhler, L., *see C. Engler.*  
 Wöhler, L., *see I. Wöhler.*  
 Wöhler, L., *see P. Wöhler.*  
 Wöhler, L., 1134, 2981.  
 Wöhler, L., A. Foss, and W. Plüdemann, 1134.  
 Wöhler, P., *see W. Krep.*  
 Wöhler, P., and L., and W. Plüdemann, 1133.  
 Woescher, A., 2628.  
 Woh, A., 3007.  
 Wohanka & Co., 2965.  
 Wohl, A., 183, 401, 2313, 2456, 2557, 2558, 2660, 2999, 3000, 3009, 3032, 3042.  
 Wohl, A., and E. List, 183.  
 Wohl, A., and O. Poppenberg, 678, 2313.  
 Wohl, A., and H. Roth, 2436.  
 Wohlgemuth, J., 421.  
 Woker, 421.  
 Woker, G., *see H. Maggi.*  
 Woker, G., 421, 484.  
 Wolcott, H., 2738.  
 Wold, O., 2586.  
 Wolesky, F., 304, 316.  
 Wolf, C., 2668.  
 Wolf, D., *see C. Muller.*  
 Wolf, E., *see V. Kottenroth.*  
 Wolf, F., *see Aktien Gesellschaft f. Chem. Industrie.*  
 Wolf, G., 1633, 2010, 2026.  
 Wolf, H., 2584.  
 Wolf, I., 751, 956.  
 Wolf, J., 678, 945.  
 Wolf, L., and R. Büchner, 2577.  
 Wolf, P., 231.  
 Wolf, R., *see H. Moore.*  
 Wolf, R., 1239.  
 Wolf, T., 1203.  
 Wolf, W., 1633, 2778.  
 Wolf, W., and F. v. Förster, 2251.  
 Wolf, W., and M. v. Foerster, 2384, 2943.  
 Wolf-Burckhardt, F., and W. Borchers, 1363.  
 Wolfes, O., 2858.  
 Wolff, *see Pontaux & Wolff.*  
 Wolff, 2781.  
 Wolff & Co., 2251, 2763.  
 Wolff, A., *see R. Wolfenstein.*  
 Wolff, A., 2497.  
 Wolff, C., 2304, 2718.  
 Wolff, E., 840.  
 Wolff, F., *see Chemische Industrie Aktien Gesellschaft.*  
 Wolff, G., 2619.  
 Wolff, H., 2280, 2410, 2412, 2571, 2778.  
 Wolff, H., and B. Rosumoff, 2496.  
 Wolff, I., 417.  
 Wolff, J., *see A. Fernbach.*  
 Wolff, J., *see C. Gessard.*  
 Wolff, J., *see L. Maquenne.*  
 Wolff, J., 125, 431, 469, 936, 2407, 2601, 3078.  
 Wolff, J., and A. Fernbach, 443, 445, 469, 482.  
 Wolff, J., and E. Roux, 469.  
 Wolff, M., 2883.  
 Wolff, T., 1108.  
 Wolff, W., *see M. v. Förster.*  
 Wolff, W., and M. v. Förster, 1810, 2386, 2963.  
 Wolff, Z., 2683.  
 Wolff, Z., E. Silbermann, J. Silbermann, and J. Moscovitz, 2683.  
 Wolfenstein, R., *see Q. Boeters.*  
 Wolfenstein, R., *see G. Bumcke.*  
 Wolfenstein, R., 161, 2405, 2445, 2538, 2610.  
 Wolfenstein, R., and O. Boeters, 985.  
 Wolfenstein, R., and G. Bumcke, 12, 224.  
 Wolfenstein, R., and A. Wolff, 1294.  
 Wolfgang, 2642.  
 Wolfram, G., 557, 1625, 1644, 1645, 1647, 2801, 2810, 2816.  
 Wolfram, J., 1631, 2838, 2842, 2844, 2845, 2869.  
 Wolfrum, L., and J. Pinnow, 2424.  
 Wolfshohl, H., 1964, 1966.  
 Wolgast, K., *see A. Michael.*  
 Wolkersdorfer, A., 1785, 2576.  
 Wolkersdorfer, U., 2684.  
 Wolkoff, A., *see Bugaieff.*  
 Wolkow, A., 2456.  
 Woll, H., 1005.  
 Wollaston, B., 2888.  
 Wollaston, S., 2842.  
 Wollheim, *see Cohn & Wollheim.*  
 Wollman, E., *see J. Duclaux.*  
 Wolny, F., 459.  
 Wolpian, L., 2480.  
 Wolterbeck, 3082.  
 Wolterbeck, H., 678, 684, 945, 2485, 2625, 2636, 2637.  
 Wolterbeck, W., 946.  
 Wolterek, 678.  
 Wolter, L., 2763.  
 Wolters, J., 678, 1101, 1130, 1131.  
 Wolters, W., 948, 1359, 1363, 1391.

- Wollenueber, M., see D. Robertson.*  
*Wood, see Lang, Bridge & Wood.*  
*Wood, see Truman-Wood.*  
 Wood, 2819, 2915.  
*Wood, C., see S. Schryver.*  
 Wood, E., 2723, 2727.  
 Wood, G., 2752, 2850, 2920.  
*Wood, H., see P. Spielmann.*  
 Wood, H., 2920.  
 Wood, H., A. White, and T. Price, 2426.  
 Wood, J., 226, 678, 853, 2945, 2964.  
 Wood, J., and J. Scott, 2511, 2517.  
 Wood, S., and Park<sup>o</sup>House Dyeing Co., 226, 2617.  
*Wood, W., see J. Hyatt.*  
*Wood, W., see Lund Bridge, Ltd.*  
*Wood, W., see J. Stevens.*  
 Wood, W., 2838, 2842, 2904.  
 Wood, W., and T. Bartlett, 2727.  
 Wood, W., and G. Gillmore, 2685.  
 Wood, W., and J. Stevens, 2610.  
*Woodbridge, R., see A. Broadbent*  
 Woodbridge, R., 1931, 1994, 2966, 3016.  
 Woodbridge, W., 329, 1814.  
 Woodbury, 2852, 2907.  
 Woodbury, C., 1852.  
 Woodbury, J., 2708. •  
 Woodbury, W. B., 2617, 2822, 2856, 2860, 2902, 2911, 2917.  
*Woodcock, R., see C. Kingzett.*  
 Woodcock, W., and W. Harper, 730.  
*Woodhouse, H., see W. Denham.*  
 Woodiwiss, G., 2883.  
 Woodiwiss, G., and E. de Zuccato, 2911.  
*Woodley, P., see C. Stearn.*  
 Woodman, C., 2857.  
 Woodmann, D., 1899.  
 Woodrop, L., 316.  
 Woods, 2885.  
 Woods, A., 2096.  
 Woods, C., 2867, 2920.  
 Woods, J., 2518, 2651, 2717, 2741.  
 Woods, T., 1589, 2838.  
 Woods, W., 955.  
 Woodward, G., 1784, 2754, 2893.  
 Woodward, W., 2754, 2835.  
 Woodworth, 2782. •  
*Woog, P., see L. Brunel.*  
*Woodbridge, see Houben.*  
 Wooldridge, L., and A. Fox, 2578.  
*Woolett, G., see F. Frary.*  
 Wollner, A., and A. Lassloffy, 2418.  
 Worden, E., 414, 901, 1490, 1673, 1683, 1696, 1854, 1897, 2358, 2609, 2665, 2991, 3015, 3018, 3022, 3060.  
 Worden, E., P. Drinker, J. Buford, L. Rutstein, and R. Dort, 901.  
 Worden, E., and J. Motion, 1053, 1316, 1327.  
 Worden, E., and L. Rutstein, 2387, 3015.  
*Worley, F., see H. Armstrong.*  
 Wormald, A., 2728.  
 Wormald, R., 2729.  
 Worthington, G., 2727.  
*Worthington, J., see Dunlop Rubber Co.*  
 Worthly, A., 2800.  
 Wortley, A., and W. Vernon, 2887.  
*Wortley, H., see M. Lad.*  
 Wortley, H., 2804, 2810, 2813, 2816, 2818, 2820, 2821, 2827, 2828, 2829, 2830, 2831, 2836, 2838, 2839, 2840, 2842, 2844, 2845, 2846, 2847, 2851.  
 Wortley, H., and W. Vernon, 2851.  
*Wortley, S., see T. Sutton.*  
 Wortley, S., 2912.  
 Wortman, J., 419.  
 Woscher, 2652.  
 Woscher, A., 2757.  
 Wotherspoon, W., 415.  
*Wothlij, J., see also J. Wothly.*  
 Wothlij, J., 2827, 2851.  
 Wothly, 2896.  
 Wothly, H., 2808.  
 Wothly, J., 2851.  
 Wourtsel, E., 714, 716, 718, 1005.  
 Wrampelmeier, T., 1119.  
 Wratten, 2838. •  
 Wrede, 1586.  
 Wrede, B., 1808.  
 Wrede, H., 304, 467, 614.  
 Wreden, F., 2515.  
 Wrewski, M., 2437.  
 W. R. H., 1019.  
 Wright, 1090, 1091.  
*Wright, A., see T. Don*  
 Wright, A., 304.  
 Wright, B., 2559.  
 Wright, C., 70, 92, 124.  
*Wright, F., see W. Parsons.*  
 Wright, J., 2611, 2780.  
*Wright, L., see F. Shuff.*  
 Wright, L., 678, 945, 1024, 1076, 1076, 1081.  
*Wright, R., see T. Don.*  
 Wright, R., 2794.  
*Wright, W., see G. Beckett.*  
 Wrigley, 293.  
 Wroblewski, A., 4432.  
 Wroblewski, S., 678, 692.  
 Wroblewski, S., and K. Olzewski, 678.  
*Wroczyński, A., see E. Briner.*  
 Wroczyński, A., and P. Guye, 2504.

- Wrowlewski, A., 390.  
*Wüg, see C. Bache-Wüg.*  
*Wülfing, A., see P. Bergall.*  
*Wülfing, J., see P. Alskben.*  
 Wülfing, J. von, 2778.  
 Wülfing, Dahl & Co., and H. Wylér, 2024.  
 Wuellner, A., 678, 1020.  
 Wünnemann, M., 231.  
*Wünsche, A., see R. Sauerbrey.*  
 Wuerster, 243.  
 Wuerster, C., 806.  
*Würth, A., see Pier.*  
 Wuertemberg Kattun Manufaktur Heidenheim, 233.  
 Wulf, P., 2454.  
 Wulkan, H., 481, 2550.  
 Wulkan, H., and Dextrin Automat Gesellschaft, 481.  
 Wulkan, H., and H. Straetz, 480.  
 Wullner, A., 710.  
 Wunder, M., and O. Lascar, 678.  
 Wunderlich, 2032.  
 Wunderlich, W., 1951.  
*Wundt, E., see A. Ladenburg.*  
*Wurmser, R., see J. Bielecki.*  
 Wurster, C., 197, 262, 304.  
 Wurth, C., 2738.  
 Wurtz, A., 1210, 2437, 2447, 2471, 2486, 2506.  
 Wurtz, H., 678, 1074, 1075.  
 Wutzer, 2788.  
 Wuyts, H., 2515, 2534.  
 Wyckoff, A., and M. Haudschiegl, 2807.  
 Wyeth, F., 2741.  
 Wyld, W., and S. Shepherd, 1270, 1280.  
*Wylér, H., see Wülfing, Dahl & Co.*  
 Wyman, A., 1549, 2685, 2688.  
 Wynne, 1063.  
 Wynne, J., and L. Powell, 101, 2594, 2701.  
 Wyser, A., 225, 226, 3067.  
 Wyss, H., 2622.  
 Wyss-Naef, H., 1758, 2625, 2626.  
 Wyss, H. v., 2466.  
 Xalhou, 2470.  
 Yagn, N., 453.  
 Yamakaki, E., 2552.  
 Yardley, H., 1061.  
 Yarnall, H., 2986.  
 Yates, W., 231.  
 Yegounow, M., 1020.  
 Yeoman, G., 2423.  
 Yeomans, W., 2714.  
 Yilner, C., 187, 237.  
 Yocum, J., and A. Faust, 816.  
 York, F., 2816.  
 Yoshida, H., 184, 2517.  
 Yoshimura, K., 239.  
*Young, A., see A. Kayser.*  
*Young C., see W. Craven.*  
 Young, C., 678, 1020, 2497.  
*Young, J., see W. Hodgkinson.*  
 Young, J., 2738, 2926, 3080.  
 Young, R., 391.  
*Young, S., see W. Ramsay.*  
*Young, S., see H. Sanborn.*  
 Young, S., 1027, 1028, 1033, 1086, 1091, 1785, 2416, 2432, 2460, 2498, 2499, 2500, 2504, 2505, 2506, 2507, 2508, 2510, 2922.  
 Young, S., and E. Fortey, 2405, 2407, 2434, 2443, 2460, 2491, 2504, 2508.  
 Young, S., and G. Thomas, 2432, 2500, 2504.  
 Young, T., and J. Pettigrew, 304, 699.  
 Young, W., 2738.  
 Younger, W., 1252.  
 Yurisch, A., 2784.  
*Yves, see Saint-Yves.*  
 Yvonneau, 2788.  
 Zabłudowsky, 2743.  
 Zacharia, 67.  
 Zacharias, F., 304.  
 Zacharias, P., 33, 64, 1688, 2652.  
 Zachau, 2470.  
 Zaenker, W., 100, 923.  
*Zaharia, A., see C. Istrati.*  
 Zaharia, A., 2515.  
 Zahn, C., 2923.  
 Zahn, O., 788, 1300, 1375.  
 Zakrzewski, A., 664.  
 Zakrzewski, C., and C. Kraft, 1757.  
 Zalesky, K., 2439.  
*Zalzecki, R., see E. Hanausek.*  
 Zambuhl, S., 2579.  
 Zambuhl, S., and H. Hall, 2577.  
 Zamkow, L., 2485.  
 Zamore, A., and O. Carlson, 930.  
*Zanardo, see Barzano.*  
 Zanardo, B. de, 928.  
 Zand, A., 2589.  
 Zander, 326.  
 Zander, A., 2398, 2430, 2441.  
 Zanker, W., 1006B.  
 Zanker, W., and E. Fäber, 1036.  
 Zanner, A., 1248, 1290, 1363, 1386.  
 Zanotti, V., 25, 166, 239.  
 Zantedeschi, F., 1586.  
 Zapon-Lack-Gesellschaft, 2583, 2589, 2618.  
 Zappl, E., 3024.

- Zarniko, G., 929, 1006B.  
 Zasukhin, A., 678.  
 Zaunschirm, H., 2759.  
 Zavelberg, A., 1070, 1073.  
 Zawadzki, X., and E. Meyer, 290, 316.  
 Zawidski, J. von, 2434, 2504.  
 Zbiewski, S., *see* J. Buraczewski.  
 Zdanowich, J., 2597, 2992, 3014.  
 Zdarek, E., 2415.  
 Zdaska, 1308.  
 Zechtmayer, K., *see* W. Manchoť.  
 Zechmeister, L., *see* R. Wustatter.  
 Zechendorf, A., and Maschinenbau Aktiengesell. Golzer-Grimma, 2420, 2556.  
 Zeun, K., 2714.  
 Zehetmayr, A., 1051.  
 Zehnder, L., *see* W. Rontgen.  
 Zeidler, H., *see* M. Stritar.  
 Zeidler, W., *see* Chem. Werke Fürstenwalde.  
 Zeidler, W., 2676, 2680, 2688, 2730.  
 Zeisberg, F., 15, 946, 988, 1136, 1267, 1426.  
 Zeise, W., 2469.  
 Zeisel, 353, 368.  
 Zeisel, S., *see* A. Lieben.  
 Zeisel, S., *see* B. Welbel.  
 Zeisel, S., and M. Danić, 2445.  
 Zeisel, S., and M. Stritar, 172, 387.  
 Zeitschek, A., *see* S. Weiser.  
 Zeitschel, F., 2519.  
 Zeitschel, M., 2533.  
 Zeitzer Eisengiesserei, 1359.  
 Zelasko, V., 1456.  
 Zelensky, M., 3058, 3079.  
 Zelewski, R., 1072, 1073, 1074, 1080.  
 Zelikow, J., *see* N. Zelinsky.  
 Zelinsky, N., and S. Krapiwín, 2409.  
 Zelinsky, N., and J. Zelikow, 2402.  
 Zeller, G., 2385.  
 Zellstoffabrik Waldhof, 27, 286, 320, 568, 660, 664, 1076, 1810, 1812, 2020, 2026, 2651.  
 Zellstoffabrik Waldhof, and V. Hottenroth, 96, 286.  
 Zellstoff und Papierfabrik, *see* Aktien-gesellschaft f. Zellstoff und Papierfabr.  
 Zellstoff Verwertungs, 2637.  
 Zelluloidkanmfabrik in Prag, Brüder Lux, 2728.  
 Zellweger, 1073.  
 Zellner, J., *see* Neumann & Co.  
 Zemplen G., *see* E. Abderhalden.  
 Zemplen, G., *see* Fischer.  
 Zemplen, G., 189, 213.  
 Zemplen, G., and E. Daszlo, 187, 662.  
 Zengehlis, C., 378, 900.  
 Zenger, 2871.  
 Zenger and Gaignet, 2871.  
 Zenk, C., 2778.  
 Zenk, F., 291.  
 Zenneck, J., 58.  
 Zentrale f. Wissenschaftliche und Schulkinematographie, 2896, 2900.  
 Zentralstelle für Wissenschaftliche Technische Untersuchungen, Gesellschaft, 916, 980, 1006, 2984.  
 Zentralstelle, *etc.* *see also* Central, *etc.*  
 Zepharovich, V., 1020, 2545.  
 Zerewitinoff, T., 434.  
 Zernander, A., 2981.  
 Zerning, H., 2594.  
 Zerning Lamp Syndicate, Ltd., 2594.  
 Zerriess, J., *see* A. Valentin.  
 Zetsche, 243.  
 Zetsche, A., 1073.  
 Zettermann, F., 2430.  
 Zettnow, 2842, 2844.  
 Zettnow, E., 1621, 2048, 2802, 2807, 2852, 2850.  
 Zeynek, v., *see* Ludwig.  
 Zeynek, R. v., 1020.  
 Zieglmeyer, C., 304.  
 Ziegenberg, R., 1300.  
 Ziegle, 2923.  
 Ziegler, 1326, 2834.  
 Ziegler, A., 316.  
 Ziegler, M., 2994.  
 Ziegler-Reinacher, H., 2746, 2748.  
 Zienkowski, F., *see* Moycho.  
 Zienkowski, F., *see* G. Wagner.  
 Zigall, J., 2335.  
 Zignone, M., 2608.  
 Ziller, R., 561.  
 Zimmer, A., 1889, 2583, 2614, 2094, 2708, 3024, 3050.  
 Zimmer, A., J. Bryce, and G. Davies, 3032, 3047.  
 Zimmer, F., *see* A. Dubosc.  
 Zimmer, F., 213, 2584, 3013.  
 Zimmer, F., H. Schwarz, and A. Conley, 2395.  
 Zimmer, G., 2741.  
 Zimmer & Co., *see* Ver. Chininfabriken Zimmer & Co.  
 Zimmerli, *see* Meyer-Zimmerli.  
 Zimmermann, *see* Behrend.  
 Zimmermann, 2800.  
 Zimmermann, A., 243, 291, 2560.  
 Zimmermann, D., 154.  
 Zimmermann, F., *see* C. Hagemann.  
 Zimmermann, M., *see* A. Goldberg.  
 Zimmermann, O., and G. Hagemann, 304.  
 Zimmermann, S., 714.

- Zimmermann, T., see C. Hagemann.*  
*Zimmermann, W., 504, 2410.*  
*Zinke, T., see A. Fraichimont.*  
*Zingler, M., 2473, 2535, 2602.*  
*Zink, J., see C. Burke.*  
*Zinke, A., and H. Lieb, 2592.*  
*Sinn, H., 2717.*  
*Zinno, L., 1061.*  
*Zipser, 2844.*  
*Zipser, S., 2556.*  
*Zirkonglasges, G. m. b. H., 1363.*  
*Zittaeur, 565.*  
*Zmerlikas, F., see R. Wegscheid.*  
*Znaer, A., 1070.*  
*Zoechroms, see Middleton.*  
*Zoeller, T., and E. Grete, 679.*  
*Zoharia, A., 2511.*  
*Zouca & Co., 2563.*  
*Zorn, L., see V. Grignard.*  
*Zorn, W., 710.*  
*Zotta, V. von, see E. Linnemann.*  
*Zouboff, B., 2458.*  
*Zachocke, H., 1086.*  
*Zachokke, B., 2366.*  
*Zsigmondy, R., 2820.*  
*Zu Aichsburg, see Aichsburg.*  
*Zuasnabar, A., see A. Franz.*  
*Zuboff, P., 2442.*  
*Zuccato, E. de, see G. Wanders.*  
*Zuckerbaecker, L., see A. Hagemann.*  
*Zühl, E., 1785, 2536, 2538, 2539,  
 2540, 2541, 2671, 2753, 3020, 3041,  
 3051.*  
*Zühl & Eisemann, 2538, 2540, 2541,  
 2542, 3041.*  
*Zündel, E., see Société de la Manu-  
 facture.*  
*Zündwaren und Wetterlampenfabrik,  
 see Borchsen-Lindner.*  
*Zürer, K., see H. Goldschmidt.*  
*Zulkowski, 390, 391.*  
*Zulkowski, K., 391, 414, 430, 441,  
 1041, 1055.*  
*Zulkowsky, K., and B. Franz, 391,  
 414, 441.*  
*Zuntz, N., 346.*  
*Zuntz, N., and Lehmann, 346.*  
*Zuylen, see P. Van Zuylen.*  
*Zweigler, F., 304.*  
*Zwick, H., 3053.*  
*Zwick, W., 430.*  
*Zyl, J. van, 678, 936.*



Leo Rutstein



## INDEX OF SUBJECTS

NOTE.—The following includes both an index of the chemicals and compounds referred to within these pages, but in addition, an index of the subjects and the intermediate methods of treatment of materials as well. The 20601 separate citations of 20370 different subjects, are distributed alphabetically as follows: A, 1431 subjects, 1349 separate references thereto; B, 672, 641; C, 7160, 7043; D, 568, 545; E, 620, 599; F, 461, 473; G, 533, 534; H, 431, 427; I, 239, 212; J, 45, 68; K, 61, 62; L, 509, 521; M, 1020, 901; N, 1042, 1169; O, 350, 341; P, 1485, 1432; Q, 42, 41; R, 234, 217; S, 2062, 2117; T, 661, 543; U, 81, 89; V, 237, 249; W, 244, 240; X, 63, 85; Y, 6, 7; Z, 86, 97.

- Abel heat test, 2321.
- Abies amabilis*, composition of, 261.
- Abies balsamea*, composition of, 261.
- Abies concolor*, composition of, 261.
- Abies grandis*, composition of, 261.
- Abies lasiocarpa*, composition of, 261.
- Abies magnifica*, composition of, 261.
- Abies nobilis*, composition of, 261.
- Abietinic acid*, see *Abietic acid*.
- Abraham's theory, 1249.
- Abrastol*, see *Asaprol*.
- Absorbent cotton, see *Cotton*, absorbent.
- Absorbents, nitric acid in, recovery of, 948.
- Absorption chamber, see *Absorption tower*.
- Absorption tower, 838, 1088.
- Absorption tower, nitric, 751.
- Absorption towers, theory of, 751.
- Acacia, 411.
- , dry plate preservative, 2828, 2830.
- , synthetic, 98.
- Acapnia, 1809.
- Acaroid, cellulose ester solvent, 2541.
- Accumulator acid, manufacture of, 1346.
- Accumulators, celluloid, 2658, 2699.
- Acetaldehyde*, see also *Aldehyde*.
- , 1734, 2817, 2994.
- , cellulose acetate solvent, 3029.
- , cellulose nitrate solvent, 2388.
- , erythrite from formaldehyde and, 1857.
- , manufacture of, 2994.
- , —, ethyldene diacetate for, 3002.
- , oxidizing, 2996.
- Acetaldehyde oxim*, see *Acetaldoxim*.
- Acetaldol, 2390.
- , amyl acetate substitute, 2582.
- , cellulose ester solvent, 2542, 3029.
- , plastic of nitrostarch and, 1817.
- Acetamide, cellulose acetate solvent, 3036.
- Acetamidomethylsalicylic acid*, see *Benzaceline*.
- Acet-o-amidololuene*, see *o-Acettoluide*.
- Acet-o-amido toluene*, see *Acet-p-toluide*.
- Acet-p-amido toluene*, see *Acet-p-toluide*.
- Acetanilid, amyl acetate substitute 2583.
- , cellulose acetate solvent, 3038.
- , cellulose ester solvent, 2544, 2545.
- , nitrostarch stabilizer, 1828.
- Acet-p-anisidide, cellulose ester solvent, 2546.
- p-Acet anisidin*, see *Methacetin*.
- Acetatecellulose*, see *Cellulose acetate*.
- Acetated castor oil, see *Castor oil*, acetated.
- Acetated cellulose, see *Cellulose*, acetated.
- Acetated starch, see *Starch*, acetated.
- Acetated turpentine, see *Turpentine*, acetated.
- Acetate silk, see *Filaments*, artificial cellulose acetate.
- Acetates, inflammability reduce 1703.
- Acetation, see also *Esterification*.
- Acetbenzenesulfoamid, cellulose ester solvent, 2547.
- Acetdichlorhydrin, cellulose ester solvent, 2543.
- Acetethylanilide*, see *Ethylacetanilid*.
- Acetic acid, 2822.
- , see also *Pyroligneous acid*.
- , absorption of tannin by celluloid and, 62.
- , acetating cellulose by, 2992.
- , action of, on cellulose, 120.
- , alcohol recovery by, 2558.
- , bleaching with, 613.
- , celluloid containing, 2578.
- , cellulose formate solvent, 2990.



- Acetic acid, cellulose-nitrate decomposition product, 1708.  
 —, concentrating, 2997.  
 —, decomposition cellulose to, 15.  
 —, density, 2998.  
 —, determination, 188, 3005.  
 —, determining in presence formic acid, 3005.  
 —, dissolving cellulose acetate in, 2999.  
 —, dissolving nitrosaccharose by, 1850.  
 —, distilling from carbohydrates, 41.  
 —, distilling from cellulose, 41.  
 —, distilling from starch, 41.  
 —, distilling from sugar, 41.  
 —, ether recovery by, 2558.  
*Acetic acid, glacial, see also Acetic acid, concentrated.*  
 —, hydrocellulose yielding, 136.  
 —, manufacture of, 201, 2992, 3061.  
 —, —, sulfite liquor for, 2997.  
 —, —, synthetic, 2396.  
 —, oxidizing acetaldehyde to, 2990.  
 —, paint remover containing, 2563.  
 —, preventing fog in collodion by, 2810.  
 —, production of, 257.  
 —, properties of, 2990.  
 —, purifying, 2997, 2998.  
 —, —, niter cake for, 803.  
 —, sea weed for, 2997.  
 —, solubility of, 2999.  
 —, solubility silicon-iron alloys in, 957.  
 —, solvent of steel enamel, 2998.  
 —, splitting camphene-hydrochloride by, 2528.  
 —, synthetic, manufacture of, 2396, 2994.  
 —, use in mantle impregnation, 2999.  
*Acetic acid amide, see Acetamide.*  
*Acetic anhydride, 2992.*  
 —, gaseous, manufacture cellulose acetate by, 3012.  
 —, hydrolysis, velocity of, 3001.  
 —, manufacture of, 3000.  
 —, —, ethylidene diacetate for, 3002.  
 —, purifying, 3000.  
*Acetic, anhydrous, see Acetic anhydride.*  
*Acetic cellulose, see Cellulose acetate.*  
*Acetic ether, see Ethyl acetate.*  
*Acetyl oxide, see Acetic anhydride.*  
*Acetin, 2963.*  
 —, amyl acetate substitute, 2582.  
 —, cellulose acetate solvent, 3034.  
 —, cellulose nitrate solvent, 2384, 2547.  
 —, dissolving nitrodextrin by, 1854.  
*Acetin, see also Glyceryl triacetate, Triacetin.*  
*Acetin-diformin, cellulose acetate solvent, 3033.*  
*Acetin-formin, cellulose acetate solvent, 3033.*  
*Acetin-monoformin, cellulose acetate solvent, 3033.*  
*Acetmethylanilide, see Exalgine.*  
*Acet- $\beta$ -naphthalid, cellulose ester solvent, 2546.*  
*Acet- $\alpha$ -naphthylamine, see  $\alpha$ -Acetnaphthalide.*  
*Acet- $\beta$ -naphthylamine, see Acetnaphthalide (2).*  
*Acetoacetic ester, see Ethyl acetoacetate.*  
*Acetoacetic ether, see Ethyl acetoacetate.*  
 *$\beta$ -Acetobromgalactose, 182.*  
 *$\beta$ -Acetobromglucose, 183.*  
*Acetochilulose sulfuric acid esters, see Cellulose acetate, sulfuric acid esters.*  
*Acetochlorgalactose, 182.*  
*Acetochlorglucose, 182.*  
 *$\beta$ -Acetochlorglucose, 183.*  
*Acetochlorhydrin, cellulose acetate solvent, 3033.*  
*Acetochlorhydrin diacetate, cellulose acetate solvent, 3033.*  
*Acetochlorhydroses hepta-acetate, cellulose ester solvent, 2549.*  
*Acetochlorhydroses mono-acetate, cellulose ester solvent, 2549.*  
*Acetochlorhydroses octo-acetate, cellulose ester solvent, 2549.*  
*Acetochlorhydroses tetra-acetate, cellulose ester solvent, 2549.*  
 *$\alpha$ -Acetochlorlactose, 182, 183.*  
*Acetocinnamone, see Benzylidene acetone.*  
*Acetoethyl- $o$ -toluidide, 1736, 2278.*  
*Acetoethyl- $o$ -toluidide, viscosity cellulose nitrate in, 1737.*  
*Aceto- $p$ -iodoanilide, see Iodoacetanilide.*  
*Acetol, see also Acetylmethyl alcohol.*  
*Acetol, 74.*  
 —, cellulose nitrate solvent, 2394.  
 —, dissolving copper in ammonia with, 76.  
*Acetol salicylic ether, see Salacetol.*  
*Acetoluid, nitrostarch stabilizer, 1828.*  
*Acetolysis, 181, 187.*  
*Acetonal see Aluminium-sodium acetate.*  
*Acetone, 2278, 2282, 2395, 2972, 2973.*  
 —, anhydrous, 1747.  
 —, acetone and wax, celluloid lacquer containing, 2578.  
 —, Acetone, butyl alcohol-water, density

- system, 2399.
- acetone, celluloid lacquer containing, 2578.
- , cellulose acetate solvent, 3029.
- , cellulose nitrate solvent of methyl acetate and, 2394.
- , colliding cellulose nitrate by, 2250.
- , crystalline compound of  $\text{CaCl}_2$  and, 1747.
- , dehydrating cellulose nitrate by, 2124.
- , density of, 2398.
- , dissolving cellulose nitrate by, 2928.
- , dissolving copal by, 2400.
- , dissolving lignin by carbon tetrachloride and, 321.
- , dissolving nitrosaccharose by, 1850.
- , extracting resin from wood by, 289.
- , facilitating pulping cellulose nitrate by, 2090.
- , fermentation, 2444.
- , hydrocellulose yielding, 136.
- , manufacture of, 261, 2395.
- , —, calcium carbide for, 2399.
- , —, fermentative process, 2396.
- , manufacture from kelp, 2397.
- , manufacture from seaweed, 2397.
- , manufacture of horse chestnuts for, 2397.
- , manufacture of, purification, 2398.
- , masking diphenylamine test by, 2360.
- , methylethyl ketone, density of, 2399.
- , obtaining from soda lye, 276.
- , permanganate test for, 2399.
- , pinacene from, 2400.
- , preparing soluble starch with, 440.
- , production of, 257.
- , purification, 2398.
- , purification lignin by, 321.
- , purifying cotton by, 562.
- , solubility acetic acid in, 2999.
- , solvent properties, 2399.
- , specifications for cellulose nitrate, soluble in, 2266.
- , substitutes for, 2400.
- , synthetic, manufacture of, 2396.
- , vapor pressure of, 2399.
- Acetone-chloroform, density of system, 2399.
- Acetone diethyl sulphate, see Sulphonol.
- Acetone-ether, density of, 2399.
- Acetoneglycerol, cellulose ester solvent, 2543.
- Acetonesulphite-Bayer, see Acetone disulphite.
- Acetone oil, 2386, 2400.
- , acetylated, 2391.
- , deodorizing, 2400.
- , paint remover containing, 2563.
- Acetonic acid, see Acid, iso-oxy-butyric.
- , see Hydroxy-isobutyric acid (a).
- Acetonitrile, see Methyl cyanide.
- $\alpha$ -Acetonitroglucose, 183.
- Acetophenone, see also Hyponone.
- Acetophenone, see also Methylphenyl ketone.
- , amyl acetate substitute, 2582.
- , cellulose acetate solvent, 3030.
- Acetosol, see Acetylsalicylic acid.
- Acet-*p*-toluenesulfamid, cellulose ester solvent, 2547.
- Acet-*o*-toluidide, cellulose ester solvent, 2546.
- Acetxylicid, cellulose ester solvent, 2545.
- Acetylacetone, cellulose acetate solvent, 3030, 3041.
- Acetyl-albumin, 2603, 3057.
- Acetylamidophenyl amyl carbonate, cellulose ester solvent, 2546.
- Acetylamidophenyl ethyl carbonate, cellulose ester solvent, 2546.
- Acetylamidophenyl isobutyl carbonate, cellulose ester solvent, 2546.
- Acetylamidophenyl methyl carbonate, cellulose ester solvent, 2546.
- Acetyl-*p*-amidophenyl salicylate, see Salophen.
- Acetylaminosalol is Salophen.
- Acetylated cellulose, see Cellulose acetate.
- Acetylated starch, see Starch acetate.
- Acetylation, see Acetation.
- Acetylbenzoylamine, see Aconiline.
- (tetra) Acetylbenzoyl glucose, 187.
- (di) Acetyl bromoglycuronic lactone, 184.
- Acetyl carbinol, see Acetol.
- hepta-Acetylcellobiose, 189.
- octa-Acetylcellobiose, 181, 326.
- Acetylcellulose, naphthylamyl ether with, 2541.
- , see also Cellulose acetate.
- Acetyl chloride, 2999, 3033.
- , manufacture of, 3000.
- Acetyldichlorhexylamine, cellulose ester solvent, 2545.
- Acetyldicyclohexylamine, cellulose ester solvent, 2548, 3041.
- oct-Acetyl-diglucose, 167.
- Acetyldiphenylamine, cellulose ester solvent, 2553.

- Acetylene, 2994.  
 —, acetaldehyde from, 2064.  
 Acetylene in acetone, cellulose nitrate solvent, 2389.  
*Acetylene carbamide*, see *Acetylene urea*.  
*Acetylene tetrabromide*, see *Tetrabromethane*.  
 Acetylene tetrachloride is Tetra, chloroethane.  
 Acetylene tetrachloride, 2393, 3046.  
 —, cellulose nitrate solvent of benzol and, 2393.  
 —, removal arsenic by, 1110, 1342.  
*Acetylene tetrachloride*, see *Tetrachloroethane*.  
 —, oxidizing by mercuric oxide, 2996.  
*Acetyl-p-ethoxy-phenyl-urethane*, see *Thermodin*.  
 Acetyllethylamidophenyl amyl carbonate, cellulose ester solvent, 2546.  
 Acetyllethylamidophenyl ethyl carbonate, cellulose ester solvent, 2546.  
 Acetyllethylamidophenyl isobutyl carbonate, cellulose ester solvent, 2546.  
 Acetyllethylamidophenyl methyl carbonate, cellulose ester solvent, 2546.  
*Acetyl-ethyl ketone*, see *Methyl-ethyl ketone*.  
 (tetr) Acetyl-d-gluconolactone, 183.  
*Acetyl glucoses*, see *Glucose acetates*.  
 (pent) Acetylhexose, 182.  
 Acetylhydrocellulose, cellulose ester solvent, 2547.  
*Acetylhydrocellulose*, see also *Hydrocellulose acetate*.  
 Acetyl iodide, catalyst of cellulose by, 192.  
 Acetylmethylamidophenyl ethyl carbonate, cellulose ester solvent, 2546.  
 Acetylmethylamidophenyl amyl carbonate, cellulose ester solvent, 2546.  
 Acetylmethylamidophenyl isobutyl carbonate, cellulose ester solvent, 2546.  
 Acetylmethylamidophenyl methyl carbonate, cellulose ester solvent, 2546.  
 Acetylmethylanilid, cellulose acetate solvent, 3038.  
 Acetylmethyl aniline, cellulose ester solvent, 2545, 3040.  
 Acetyl nitrate, manufacture of, 2005.  
 —, nitrating by, 2005.  
 Acetylnitrocellulose, 1790.  
 —,  $\beta$ -naphthol amyl ether as solvent for, 2541.  
*Acetyl oxide*, see *Acetic anhydride*.  
 Acetyloxycellulose, cellulose ester solvent, 2547.  
 Acetylpalmitic esters, cellulose acetate and, 3054.  
*Acetylphenylenediamine*, see *p-Amidoacetanilide*.  
 Acetylphenylnaphthylamine, cellulose ester solvent, 2553, 3040.  
 $\beta$ -Acetylpropionic acid, see *Levulinic acid*.  
*Acetyl-saccharose*, see *Saccharose acetate*.  
 (tetr) Acetylsalicyl glucose, 187.  
*Acetyl-salicylic acid*, see *Aspirin*.  
*Acetylsulfuric acid*, see *Sulfacetic acid*.  
*Acetysal*, see *Acetylsalicylic acid*.  
*Achilleic acid*, see *Aconitic acid*.  
 Acid, see also *Liquids, corrosive*.  
 —, absorption of, by cotton, 118.  
 —, —, by silk, 118.  
 —, —, by wool, 118.  
 —, absorption towers, 1485.  
 —, accumulator, 1322.  
 —, action, on cellulose, 116.  
 —, —, manufacture of, 1346.  
 —, agitation of, 1414.  
*Acid ammonium purpurate*, see *Murexide*.  
 Acid, analysis, 1504.  
 —, —, electric conductivity method, 1506.  
 Acid baths, calculation, 1485.  
 —, calculating, Djeinem method, 1517.  
 —, —, Hofsass method, 1518.  
 Acid blenders, revivifying, 1477.  
 Acid, blowing, 1274.  
 Acid calculation, Clement and Riviere system, 1488, 1489.  
 —, Craven method, 1504.  
 —, Fowler method, 1499.  
 —, graph method, 1499.  
 —, Redpath method, 1490.  
 Acid cellulose, 12, 13, 122, 156, 224, 1905.  
 Acid cellulose, Ekström's, 148.  
 —, properties, 123.  
 Acid-cellulose lactone, 1903.  
 Acid, collecting apparatus for, 959.  
 —, concentrating, electric power required, 1380.  
 —, —, electrolytic, 1380.  
 —, —, enameled iron for, 1363.  
 —, —, Gaillard tower for, 1372.  
 —, —, gaseous, 1382.  
 —, —, Gilchrist system, 1393.  
 —, —, gold stills for, 1367.

- Acid, concentrating, iron for, 1353.  
 —, —, Kessler type, 1383.  
 —, —, lead pans for, 1358.  
 —, —, pan, 1380.  
 —, —, platinum for, 1364.  
 —, —, Quinan pan, 1354.  
 —, concentrating, silicon nitride for, 1363.  
 —, —, concentration, Radiateur, 1384.  
 —, —, saturex, 1384.  
 —, —, vacuum, 1380.  
 —, condensation, of, 838.  
 Acid condensers, 838.  
 Acid, condensing, du Pont apparatus, 1427.  
 Acid containers, lining, 958.  
 Acid, cooling, lead coils for, 760.  
 —, denitration, 1440.  
 —, —, Evers process, 1447.  
 —, —, Guttman process, 1462.  
 —, —, Vender process, 1460.  
 —, dipping, 1484.  
 —, distilling, still charging, 1437.  
 —, distributing, 1272, 1274, 1518.  
 —, —, Arnott system, 1993.  
 —, —, Briggs apparatus, 1427.  
 Acid duct, glass, Pilkington, 959.  
 Acid egg, 761, 960, 1274, 1430.  
 Acid egg, self-acting, Blair's, 1275.  
 Acid, electrostatic precipitation, 1373, 1392.  
 —, elevating, 1275.  
 —, —, Pohle lift for, 762.  
 Acid elevator, Kestner, 1275.  
 Acid elevators, 762, 960.  
 Acid fans, 1977.  
 Acid, feed, distribution of, 1272.  
 —, filtering, Brockbank apparatus, 1414.  
 —, fortifying, calculations in, 1486.  
 —, fume elimination, 1484.  
 —, handling, 960, 1312, 1313.  
 —, —, emergencies in, 1313.  
 —, —, precautions, 1485.  
 Acid joints, 765.  
 Acid mains, 760.  
 Acid, manufacture, absorption towers, 762.  
 —, —, fume mains, 761.  
 —, measuring, 755.  
 Acid mist, condensation, electrical, 1251.  
 Acid mists, precipitating, 1393.  
 Acid, mists, vesicular, 1394.  
 Acid, mixed, *see also Mixed acid*.  
 —, —, 1403, 1414.  
 —, —, action water on, 1406.  
 —, —, manufacture of, 1446.  
 —, —, specific conductivity, 1403.  
 Acid, mixed, vapor density of, 1403.  
 —, mixing, du Pont apparatus, 1427.  
 Acid, nitrating, mixed, 1403.  
 Acid, nitrating, mixed, properties, 1403.  
 —, —, mixing, 1427, 1428.  
 —, —, storage, 1428.  
 —, —, valves for, 1468.  
 —, nitrosity of, 1267.  
 Acid number, 135.  
 Acid phosphate, manufacture • of, spent nitrating acid for, 1423.  
 Acid-proof coatings, 1518.  
 Acid, pumping, 960, 1274.  
 —, —, air compressor for, 1427.  
 Acid pumps, 960, 1276.  
 Acid, raising, pulsometer for, 1274, 1275.  
 Acid receivers, 760.  
 Acid, recovery, electrolytic, 1412.  
 Acid-resistant apparatus, 897.  
 Acid retorts, firing, 783.  
 —, setting, 756.  
 Acid, revivifying, production of, 1479.  
 Acid salt cake, 787.  
 Acid, sampling, 1484.  
 Acid-sludge, sulfur dioxide from, 1087.  
 Acid, solidifying, 950.  
 Acid, spent, *see also Spent acid*.  
 —, —, recovery of, 1412.  
 —, storing, 755, 956, 1428.  
 —, syphon for, 752, 960.  
 Acid tables, 1519 •.  
 Acid tanks, 1478.  
 Acid, testing, heat rise method, 1402.  
 —, titration, Mihr method, 1505. —  
 —, transporting, 948.  
 Acid valves, *see Valves, acid*.  
 Acid, valves for, Everlasting, 1431.  
 —, ventilation, 1485.  
 —, vessels for, hood, 959.  
 Acid, waste, *see Spent acid*.  
 —, —, purification of, 1209.  
 —, —, recovering, 843, 1309.  
 —, weighing, 1428.  
 Acid wheel, Schaffner, 1272.  
 Acid wringer, *see Centrifugal*.  
 Acide Végéto-sulphurique, 96.  
 Acidimetry, standardization in, potassium phthalate for, 981.  
 Acidity, determining in cellulose nitrate, 2298. •  
 Acidol, *see Betaine hydrochloride*.  
 Acoïn C, *see Di-p-anisylmono-p-phenylguanidin-chlorhydrate*.  
 Aconitine, cellulose nitrate, and, 279.  
 Acopyrin, *see Acetopyrin*.

- Acridine, cellulose acetate solvent, 3040.
- Acridine yellow, 2875.
- $\alpha$ -Acrose, 424.
- Acroodextrin, 417, 472, 487.
- Acrylic aldehyde*, see *Acrolein*.
- Activator*, see also *Catalyst and Promoter*
- Activators*, 1898, 2535.
- Actol*, see *Silver lactate*.
- Adhesive, viscose, 3080.
- Adhesaderm, 2795.
- Adhesion, 2795.
- Adhesive, casein and cuprammonium, 70.
- Adhesive cotton, 1693.
- Adhesive plaster, liquid, 2788.
- Adhesives, celluloid, 2691.
- , manufacture from sulfite liquor, 284.
- Adipinic acid*, see *Adipic acid*.
- Adipocellulose, 11.
- Adipocelluloses, 8.
- Adonin*, see *Adonidin*.
- Adonin*, see *Adonidin*.
- Adrenalon*, see *Methylaminoacetopyrocatechin*.
- Adurol*, see *Brom chlorhydrochinone*.
- Advertising, display, celluloid for — 2701.
- Aerolacq, 3047.
- Aeronautics*, see also *Aviation*, *Aircraft*, *Balloon*.
- Aeroplane*, see *Airplane*.
- Aeschynomene aspera, nitrating stems of, 1806.
- Aesculin, preserving collodion emulsions by, 2846.
- Aesculin*, see also *Esculin*.
- Aesculinic acid*, see *Esculin*.
- Aethacol*, see *Pyrocatechin ether*.
- Aethrol*, see also *Dericin oil*.
- Aethylatine*, see *Gelatine*, *formaldehyde treated*.
- African cotton, diameter of fibers, 508.
- Agaricus campestris*, 346.
- Agathine*, see *Salicylic aldehyde-as-methylphenyl-hydrazone*.
- Agatine, 2705.
- Agave Americano, nitrating, 1877.
- Agave, nitrating, 1877.
- Agave Prostrata, nitrating, 1877.
- Agglutinants*, see *Adhesives*.
- Agrolin*, see *Laridin*.
- A. I. powder, decomposition, 1764.
- Air, action of, on cellulose, 59.
- Air-lift*, see also *Aeronautics*, *Balloon*, *Aviation*.
- Air, compressed, moving acid by, 763.
- Air compressor, pumping acid with, 1427.
- Air compressing engine, explosive for actuating, 1623.
- Air, common, 680.
- , drying, 851.
- , fixed, 680.
- , liquefaction of, 686, 687.
- , phlogisticated, 680.
- , refrigeration, 851.
- Air-ship*, see *Air-craft*.
- Air, transferring acid by, 1481.
- Aircraft*, see *Airplane*.
- Air, density of, 1237.
- Airoform*, see *Bismuthoxyiodogallate*.
- Airplane, cellulose acetate and triphenyl phosphate for coating, 3039.
- , cellulose acetate used on, 3047, 3057.
- , fabric, structure of, 3049.
- , fabrics for, 3049.
- , lacquer for, 3059.
- , wings, cellulose acetate lacquer for, 3048.
- Ajacol*, see *Pyrocatechin monomethyl ether*.
- Ajone, cellulose from, 328.
- Akeiri, 246.
- Alabama cotton, constants of 505.
- Alabastrine, 2848.
- Alanine*, see *Amido-propionic acid*.
- Alanine, cellulose nitrate membranes treated with, 1775.
- Alberite, 2669.
- Albert's emulsion A sensitizer, 2872.
- Albionit, 2968.
- Albumen, 2820.
- Albumen (egg), 411.
- Albumen-collodion process, 2834.
- Albumen, dry plate preservative, 2829.
- , fermented, coating plates with, 2828.
- Albumen glycerol, 2782.
- Albumen, iodized, 2798.
- , iodizer addition to, 2813.
- , mercerizing finish of, 232.
- , solubility, influence starch on, 437.
- Albuminates, decolorizing starch iodide by, 411.
- Albumin*, see also *Casein and Caseinates*.
- Albumin, cellulose nitrate membranes treated with, 1775.
- , decolorizing starch iodide by, 411.
- , dialysis of, 1768.
- , membrane, 1770.
- Albuminoids, celluloid substitute, 2759.

- Albuminoids, viscose and, 3082.  
 Albumose, dialysis of, 1768.  
 Alcohol, amyl, *see* Amyl alcohol.  
 —, benzyl, *see* Benzyl alcohol.  
 —, butyl, *see* Butyl alcohol.  
 —, methyl, *see* Methyl alcohol.  
 —, propyl, *see* Propyl alcohol.  
 Alcohol and ethyl acetate, amyl acetate substitute, 2583.  
 Alcohol, cellulose acetate non-solvent, 3024.  
 —, cellulose nitrate solvent of amyl acetate, benzene and, 2397.  
 —, cellulose nitrate solvent of ethyl acetate, benzene and, 2504.  
 —, cellulose nitrate soluble in, composition, 1663.  
 —, coagulating cellulose in zinc chloride by, 102.  
 Alcohol cubes, cellulose nitrate, 2598.  
 Alcohol, dehydration cellulose nitrate by, 2117, 2125.  
 —, denaturation, 2427.  
 —, density of, 2428.  
 —, determining in turpentine, 2571.  
 —, dissolving amyl acetate in, 2497.  
 —, dissolving nitroerythrite by, 1860.  
 —, effect of, on viscosity cellulose nitrate, 1740.  
 Alcohol-ether, *see also* Ether-alcohol.  
 —, action of on cellulose nitrate, 2291.  
 Alcohol, ethyl, *see also* Ethyl alcohol.  
 —, —, masking heat test in cellulose nitrate by, 2334.  
 —, —, obtaining from wood pulp, 197.  
 —, —, specifications for, 2259.  
 —, inflammability, diminishing, 2598.  
 —, manufacture of cellulose acetate soluble in, 3025.  
 —, material in after dehydration cellulose nitrate, 2144.  
 —, paint remover containing, 2562.  
 —, portable, 2573.  
 —, recovery, sulfuric acid for, 2557.  
 —, rectifying, 1728, 2130.  
 —, removal nitrogen oxides from sulfuric acid by, 1347.  
 —, removal unstable bodies in cellulose nitrate by, 1715.  
 —, solid, 2573.  
 —, —, cellulose acetate for, 2598.  
 —, solidifying, 2598.  
 —, solubility cellulose nitrate in, 1727.  
 —, specifications for, 2259.  
 —, specifications, French, 2267.  
 —, stabilizing cellulose nitrate by, 1504.  
 —, travelers, cellulose nitrate for, 2598.  
 Alcohol, *see also* Ethyl alcohol.  
 Alcolene, *see also* Alkalen, Alkolen.  
 Alcolene, 2795, 2802.  
 Aldehyde, *see* Formaldehyde, Acetaldehyde, etc.  
 —, detection of group containing, 1661.  
 —, developer of, 2822.  
 —, iodizer addition to, 2812.  
 —, sthenosage of filaments by, 3054.  
 Aldehyde group, 2871.  
 Aldehydes, cellulose acetate solvent, 3029.  
 Aldehydes, condensation products of, 2767.  
 —, distilling from carbohydrates, 41.  
 —, distilling from cellulose, 41.  
 —, distilling from starch, 41.  
 —, distilling from sugar, 41.  
 Alder, nitrating shavings from, 1878.  
 Alder wood, nitrated, 1811.  
 Aldol, amyl acetate substitute, 2582.  
 Aldols, cellulose ester solvent, 2542.  
 —, cellulose nitrate solvent, 2390.  
 Aldose, 6.  
 Aldose pentanitratates, 1844.  
 Aldoses, 1844.  
 Aldotetrose, 7.  
 Aldotriose, 6.  
 Aldoxim, *see* Acetaldoxim.  
 Algae, effect of on stability cellulose nitrate, 1711.  
 Algerian cotton, diameter of fibers, 508.  
 Algiers cotton, length of fibers, 509.  
 Alizarin lakes, 65.  
 Alizarine orange, *see* Nitro-alizarine (b).  
 Alizarin red, 1252, 1328.  
 —, SW, 65.  
 Alkalen, *see also* Alcolene, Alkolen.  
 —, 1599.  
 Alkali cellulose, 213, 234.  
 —, hydrolysis of, 21.  
 —, removing gases by, 3083.  
 Alkali palmitates, paint remover containing, 2567.  
 Alkali salt of tetrabromfluorescein, *see* Eosine (dye).  
 Alkali salt of tetraiodofluorescein, *see* Erythrosine (dye).  
 Alkali salts, niter cake in preparing, 805.  
 Alkali sulfite, preparation, 278.  
 Alkali waste, *see also* Calcium sulfide.  
 —, 1025.  
 —, hydrogen sulfide in, recovery of, 1085.

- Alkali waste, sulfur from, 2028.  
 —, sulfur dioxide from, 1058.  
 Alkaloid acetates, preserving colloid emulsions by, 2846.  
 Alkaloids, preserving colloid emulsions by, 2846.  
 Alkanet, coloring cellulose nitrate by, 2700.  
 —, preserving colloid emulsions by, 2647.  
*Alkannin*, see *Alkanin*.  
 Alkolen, 1693, 2258.  
 Alkolene, 2795.  
 Alkylamine, dissolving cellulose by copper and, 72.  
*Alkylation*, see *Cellulose*.  
 Alkyl acetates, 2382.  
 Alkylamine sulfuric salts, acetating cellulose in presence of, 3010.  
 Alkyl butyrates, 2382.  
 Alkyl carbamic esters, 324.  
 Alkyl carbonates, amyl acetate substitute, 2582.  
 Alkyl formates, 2382.  
 Alkyl nitrates, cellulose nitrate solvent of, 2384.  
 —, saponification of, 1665, 1699.  
 Alkyloxyphenyl compounds, cellulose ester solvent, 2547.  
 Alkyl propionates, 2382.  
 Alkyl valerianates, 2382.  
 Allantoin cotton, constants of, 505.  
*Allomaleic acid*, see *Fumaric acid*.  
*Allophanamide*, see *Biuret*.  
 Alloxantin, developer of, 2822.  
 Alloy, Devarda's 2317.  
 Amoy, acid-proof, 958.  
 —, action nitric acid on, 951.  
 —, action sulfuric acid on, 1222.  
 —, quartation, acid recovery in, 1426.  
 Allyl alcohol, 57.  
 —, paint remover containing, 2566.  
*p-Allylphenylmethyl ether*, see *Anethol*.  
*Allyl sulfo carbamide*, see *Thiosinamine*.  
*Allyl isosulphocyanides*, allyl isothiocyanate, see *Allyl mustard oil*.  
*Allyl sulfourea*, see *Thiosinamine*.  
*Allyl thiourea*, see *Thiosinamine*.  
*Aloe purple*, see *Aloetic acid*.  
*Aloergic acid*, see *Picric acid*.  
 Aloes, dry plate preservative, 2835.  
 —, preserving colloid emulsions by, 2847.  
*Aloetic acid*, see *Aloetic acid*.  
*Alpha compounds*, see  *$\alpha$ -Compounds*.  
 Alpine fir, composition of, 261.  
 Alters powder, 2930.  
 Althea root, nitrating, 1877.  
*Althein*, see *Asparagin*.  
 Alum, absorption of, by cellulose, 64.  
 —, purifying cellulose by, 564.  
 —, niter cake in manufacture of, 789.  
 —, paint remover containing, 2566.  
 —, photo, developing by, 2819.  
 —, reducing inflammability cellulose nitrate by, 1789.  
 —, substitute, niter cake as, 791.  
 —, sulfuric acid for manufacture of, 1350.  
*Alumina*, see *Aluminium oxide*.  
 Aluminium, 2975, 2968.  
 —, action nitric acid on, 950.  
 Aluminium acetate, absorption of, by cellulose, 64.  
 —, mordanting cellulose with, 115.  
 —, reducing inflammability cellulose nitrate by, 1787, 1789.  
 Aluminium amide, 938.  
 Aluminium bromide, reducing inflammability cellulose nitrate by, 1779, 1782.  
 Aluminium-bronze, transporting nitric acid in, 955.  
 Aluminium carbide, 920, 938.  
 Aluminium caseinate, reducing inflammability celluloid by, 2754.  
 Aluminium citrate, cellulose nitrate solvent of alcohol and, 2388.  
 Aluminium chloride, 430.  
 —, action of, on cellulose, 113, 263.  
 —, —, on wool, 114.  
 —, cellulose nitrate solvent, 2390.  
 —, effect of on viscosity cellulose nitrate, 1739.  
 —, recovery solvents by, 2557.  
 —, reducing inflammability cellulose nitrate by, 1779, 1782.  
 Aluminium cyanamide, manufacture of, 922.  
 Aluminium halide, decreasing inflammability in cellulose nitrate by, 1779.  
 Aluminium hydride, 938.  
 Aluminium hydroxide, reducing inflammability cellulose nitrate by 1779, 1789.  
 Aluminium iodide, reducing inflammability cellulose nitrate by, 1779, 1782.  
 Aluminium lactate, cellulose nitrate solvent of alcohol and, 2388.  
 Aluminium levulinate, cellulose nitrate solvent of alcohol and, 2388.  
 Aluminium nitrate, 2822.  
 —, nitric acid from, 815.  
 Aluminium nitride, 938.  
 —, ammonia from, 919, 921.

- Aluminium nitride, manufacture of, 919
- Aluminium oleate, 3057.
- Aluminium oxalate, cellulose nitrate solvent of alcohol and, 2388.
- Aluminium oxide, absorbing nitrous gases by, 893.
- , action of, on cellulose, 161.
- , catalyst of, 1111.
- , manufacture nitric acid and, 812.
- , niter cake in preparing, 805.
- Aluminium, oxidizing ammonia by, 905
- Aluminium oxychloride, mordanting cellulose with, 115.
- Aluminium palmitate, 3057.
- , paint remover containing, 2565.
- Aluminium plumbite, oxidizing ammonia by, 897.
- Aluminium powders, 2585.
- Aluminium resinate, 269, 806
- , paint remover containing, 2565.
- Aluminium seinoate, reducing inflammability cellulose nitrate by, 1786
- Aluminium salts, absorption of, by cellulose, 114.
- , mordanting cellulose with, 115.
- Aluminium silicate, 955.
- , reducing inflammability cellulose nitrate by, 1787.
- Aluminium soap, 88
- Aluminium, solubility in nitric acid, 950.
- Aluminium stearate, 2970, 3057.
- Aluminium sulfate, 88.
- , action of, on cellulose, 113.
- , —, on cotton, 141.
- , catalyst, 1163.
- , mordanting cellulose with, 115.
- , niter cake in preparing, 805.
- , oleum from, 1131.
- , parchmientizing cellulose by, 104.
- , purifying cellulose by, 564.
- , reducing the inflammability cellulose nitrate by, 1789, 1790.
- , sizing paper with, 790.
- , titration of, 1328.
- Aluminium sulfite (basic), 1026.
- Aluminium sulforicinoate, reducing inflammability cellulose nitrate by, 1786.
- Aluminium, transporting nitric acid in, 955.
- Aluminium tartrate, cellulose nitrate solvent of alcohol and, 2388.
- Alundum, 1119.
- Alunite, 805.
- , sulfuric acid from, 1297.
- Amabalis fir, composition of, 261.
- Amark's explosive, 1867.
- Amber, dry plate preservative, 2829.
- , synthetic, 2721.
- Amberite, 2968.
- , 2968.
- American cement, 1398.
- American cloth, 2602.
- American cotton, composition of, 531.
- American Wood powder, 1810, 2967.
- , "C," 1810.
- , "E," 1810.
- , "Ten bore trap" 1810.
- , "Twelve bore trap," 1810.
- Amidoacetic acid, *see Glycocoll.*
- Amidoacetophenetidine, *see Phenocoll.*
- p-Amido-asobenzol, *see p-Amido-asobenzene.*
- Amidobarbituric acid, *see Uramil.*
- Amido-benzoic acid, *see Anthranilic acid.*
- Amidobenzene, *see Aniline.*
- Amidobenzenesulfoazodiphenylamine, cellulose ester solvent, 2553.
- Amidobenzol, *see Aniline.*
- p-Amidobenzyldene acetophenone, 262.
- Amidocaproic acid, *see Leucine.*
- Amidocellulose, 45, 1780.
- Amidodimethylbenzene, *see Xylidine.*
- Amido (di) phenol, *see Amidol.*
- p-Amido-diphenyl-imide, *see p-Amido-asobenzene.*
- Amidodracrylic acid, *see p-Amido benzoic acid.*
- Amidocumene, *see Cumidine.*
- Amidoethyne, *see Ethylamine.*
- Amidoethylsulfonic acid, *see Taurin.*
- $\alpha$ -Amido-n-hexoic acid, *see Leucine.*
- Amidol, 2858.
- Amidol, *see also Diaminophenol hydrochloride.*
- Amidomalonylurea, *see Uramil.*
- Amidomethane, *see Methylamine.*
- Amidophenol, cellulose acetate solvent, 3027.
- Amidoisopropylbenzene, *see Cumidine.*
- Amidosuccinic acid, *see Asparaginic acid.*
- Amidosuccinamic acid, *see Asparagin.*
- Amidosulfbenzoic acid, cellulose ester solvent, 2547.
- Amidotoluene, *see Toluidine.*
- Amidoxyline, *see Xylidine.*
- Amines, dissolving cellulose by copper and, 72.
- Aminita phalloides, 1770.
- Amino-acetanilid, *see Acetyl-phenylenediamine (p).*



- Aminoacetyl-paraphenetidine*, see *Phenocoll*.
- b-Amino-anthracene*, see *Anthramine* (b).
- Aminoazobenzene*, dyeing cellulose acetate by, 3055.
- Amino-benzene*, *phenyl-amine*, see *Aniline*.
- Aminobenzene sulfonic acid* (p), see, *Sulphanilic acid*.
- Aminoethane*, see *Ethylamine*.
- Aminoformic esters*, 929.
- Aminophenol*, cellulose acetate softener, 3042.
- p-Aminophenol*, dyeing cellulose acetate with, 3055.
- Amino-toluene*, see *Toluidine*.
- Ammonal B*, 2968.
- Ammonogelatindynamite*, 2968.
- Ammonia*, absorption of by cotton, 529.
- , action of, on cotton, 214.
  - , ammonium nitrate from, 914.
  - , catalytic production of, 934.
  - , decolorizing old collodion by, 2814, 2817.
  - , dissolving cellulose by copper and, 68.
  - , drying cellulose nitrate, in atmosphere of, 2079.
  - , fixation, niter cake for, 792.
  - , liquid, distilling, 909.
  - , liquid, fractonating, 909.
  - , —, purification, 909.
  - , manufacture, 896.
  - , aluminium nitride for, 919.
  - , —, ammonium sulfate, for, 939.
  - , —, Badische process, 904.
  - , —, Classen process, 903.
  - , —, cyanamide for, 932.
  - , —, fermentation process, 914.
  - , —, Haber process, 900.
  - , —, nitride, for, 918.
  - , niter cake as absorbent for, 788.
  - , nitric acid from, 894, 914, 942.
  - , oxidation of, catalysts for, 895.
  - , oxidation of to nitric acid, 894, 911, 1005.
  - , production, synthetic, 1006.
  - , restoring collodion by, 2814, 2817.
  - , synthetic, manufacture of, 934.
  - , —, Badische process, 904.
  - , —, Haber process, 900.
  - , —, manufacture of, Badische process, 904.
  - , —, Haber method, 900.
  - , —, Ostwald process, 911.
- Ammonia*, see also *Ammonium hydroxide*.
- Ammonia-gelatine*, 2968.
- Ammoniac*, preserving collodion emulsions by, 2847.
- Ammoniacal resin*, iodizer addition to, 2813.
- Ammoniacal cuprous oxide*, see *Cuprammonium*.
- Ammoniated albumen*, preserving collodion emulsions by, 2847.
- Ammoniated ethylic aldehyde*, see *Aldehydeammonia*.
- Ammonio-sulfate of iron*, see *Iron ammonium sulfate*.
- Ammonio-zinc hydroxide*, preparing, 71.
- Ammonite*, 2968.
- Ammonium acetate*, iodizer addition to, 2813.
- , nitrostarch stabilizer, 1828.
  - , paint remover containing, 2566.
  - , smoke reducer in powder, 2984.
- Ammonium acid tartrate*, nitrostarch stabilizer, 1828.
- Ammonium arsenate*, nitrostarch stabilizer, 1828.
- Ammonium bicarbonate*, 2972.
- Ammonium bichromate*, 2948, 2976.
- Ammonium bisulfate*, acetating cellulose in presence of, 3009.
- Ammonium borate*, smoke reducer in powder, 2984.
- Ammonium bromide*, reducing inflammability cellulose nitrate by, 1779.
- Ammonium butyrate*, nitrostarch stabilizer, 1828.
- Ammonium carbamate*, reducing inflammability cellulose nitrate by, 1790.
- Ammonium carbonate*, 2965, 2969.
- , nitrostarch stabilizer, 1829.
  - , reducing inflammability cellulose nitrate by, 1790.
  - , smoke reducer in powder, 2984.
- Ammonium caseinate*, paint remover containing, 2568.
- , reducing inflammability celluloid by, 2754.
- Ammonium chromate*, 2948.
- Ammonium chloride*, paint remover containing, 2564.
- Ammonium chromate*, nitrostarch stabilizer, 1828.
- Ammonium chloride*, action of, on cellulose, 111.
- , coagulating cellulose in zinc chloride by, 102.
  - , dissolving cellulose by, 68.

- Ammonium chloride, reducing inflammability, cellulose nitrate by, 1779, 1788.
- Ammonium citrate, cellulose nitrate solvent of alcohol and, 2388.
- , smoke reducer in powder, 2984.
- Ammonium humate, 1783, 2964.
- Ammonium hydrosulfate, 813.
- Ammonium hydroxide, coagulating cellulose in zinc chloride by, 102.
- , decolorizing old collodion by, 2815.
- , oxidation of, to nitric acid, 894.
- , paint remover containing, 2563.
- , preparing nitrogen from, 691.
- , restoring collodion by, 2815.
- , solubility cellulose nitrate in, 1728.
- Ammonium iodide, 2807.
- , decolorizing old collodion by, 2815.
- , reducing inflammability cellulose nitrate by, 1779.
- , restoring collodion by 2815.
- Ammonium lactate, cellulose nitrate solvent of alcohol and, 2388.
- Ammonium levulinate, cellulose nitrate solvent of alcohol and, 2388.
- Ammonium magnesium phosphate, reducing inflammability cellulose nitrate by, 1788.
- Ammonium nitrate, 2945, 2966, 2970, 2971, 2973, 2975, 2976.
- , acetating cellulose in presence of, 3009.
- Ammonium nitrate, alkaline decomposition cellulose nitrate containing, 1600.
- , combustion cellulose nitrate and, 1627.
- , explosive from sulfite lye and, 287.
- , gelatinated nitroglycerol and, 1634.
- , manufacture of, 837, 879, 914, 941.
- , manufacture from wash water, cellulose nitrate, 2067.
- , reducing inflammability cellulose nitrate by, 1788.
- , nitric acid from, 813, 1003.
- Ammonium nitrate powder, 1855.
- Ammonium nitrate, properties, 914.
- Ammonium nitrite, alkaline decomposition cellulose nitrate containing, 1600.
- , manufacture of, 941.
- , preparing nitrogen from, 691.
- Ammonium oxalate, 167, 2948, 2968, 2970, 2971, 2973, 2974, 2975, 2976.
- , cellulose nitrate solvent of alcohol and, 2388.
- , nitrostarch stabilizer, 1829.
- , paint remover containing, 2564.
- , reducing inflammability cellulose nitrate by, 1789, 1790.
- , smoke reducer in powder, 2984.
- Ammonium palmitate, nitrostarch stabilizer, 1828.
- Ammonium perchlorate, 2967.
- , explosive of nitrostarch and, 1826.
- Ammonium persulfate, 74, 1293.
- , action of, on cellulose, 125.
- Ammonium persulfate (acid), action of, on cellulose, 155.
- Ammonium persulfate, oxycellulose from cellulose and, 164.
- Ammonium picrate, 2870, 2948, 2965.
- , explosive of nitrostarch and, 1821.
- Ammonium platinochloride, 1102.
- Ammonium propionate, nitrostarch stabilizer, 1828.
- Ammonium purpurate, *see* Murexide
- Ammonium pyro-tartrate, nitrostarch stabilizer, 1828.
- Ammonium stearate, nitrostarch stabilizer, 1828.
- Ammonium sulfate, manufacture, 837.
- , manufacture of ammonia from, 939.
- , manufacture, niter cake for 693.
- , niter cake in manufacture of 792, 793.
- , reducing inflammability cellulose nitrate by, 1790.
- , removal nitrogen oxides from sulfuric acid by, 1347.
- Ammonium sulfide, 2823.
- , demitrating cellulose nitrate by, 1677.
- , intensifying by, 2824.
- Ammonium sulfite, 278.
- , sulfuric acid from, 1295.
- Ammonium sulfo cyanide, 1783.
- Ammonium tartrate, cellulose nitrate solvent of alcohol and, 2388.
- , nitrostarch stabilizer, 1828.
- , smoke reducer in powder, 2984.
- Ammonium thiocyanate, *see also* Ammonium sulfo cyanide.
- , dissolving cellulose by, 108.
- Ammonium uranium nitrate, 2851.
- Ammonium vanadate, 789, 1121, 1150, 2530.
- Ammonium viscose, 3073.
- Amorphous cellulose, preparation of, 240.
- Amygdalinic, *see* Amygdalic acid.
- Amyl acetate, 145, 231, 1736, 223, 2385, 2486, 2487, 2975, 3059.
- , absorption coefficient, 2490.

- Amyl acetate, advantages of, 2581.  
 —, assay, 2496.  
 —, celluloid lacquer containing, 2578.  
 —, cellulose acetate non-solvent, 3032.  
 —, cellulose nitrate solvent, 2394.  
 —, cellulose nitrate solvent of alcohol, benzene and, 2391.  
 —, cellulose nitrate solvent of butyl formate and, 2386.  
 —, cellulose nitrate solvent of methyl acetate and, 2386.  
 —, cohesion of, 2490.  
 —, deodorizing petroleum by, 2492.  
 —, density of, 2490.  
 —, dielectric constant, 2490.  
 —, dissolving nitric acid by, 1467.  
 —, dissolving nitrocrystallite by, 1860.  
 —, dissolving stearin by, 2492.  
 —, electrolytic conductivity, 2490.  
 —, hardening skins by, 2492.  
 —, Hefner lamp burning, 2494.  
 —, hydrolysis of, 2490.  
 —, illuminating power of, 2494.  
 —, lamp, standardizing, 2495.  
 —, luminosity of, 2494, 2495.  
 —, manufacture of, 2487.  
 —, motor fuel from, 2496.  
 —, occurrence, 2488.  
 —, optical rotation, 2490.  
 —, paint remover containing, 2563.  
 —, precipitating cellulose formate by, 2493.  
 —, photometric properties of, 2494.  
 —, properties of, 2488.  
 —, saponification velocity, 2491.  
 —, sensitometric use, 2494.  
 —, solubility acetic acid in, 2999.  
 —, solubility in alcohol, 2492.  
 —, solubility in water, 2489.  
 —, stabilizing cellulose nitrate with, 1711.  
 —, substitute, acetaldol for, 2582.  
 —, —, acetanilid for, 2583.  
 —, —, acetin for, 2582.  
 —, —, acetophenone for, 2582.  
 —, —, alcohol and ethyl acetate for, 2583.  
 —, —, aldol for, 2582.  
 —, —, alkyl carbonates for, 2582.  
 —, —, benzaldehyde for, 2582.  
 —, —, benzene and ethyl acetate for, 2583.  
 —, —, benzoic acid for, 2582.  
 —, —, butyric for, 2582.  
 —, —, castor oil for, 2583.  
 —, —, cyclohexanone for, 2582.  
 —, —, cyclopentanone for, 2582.  
 —, —, ethyl acetate for, 2582.  
 Amyl acetate, substitute, ethyl acetate and alcohol for, 2579.  
 —, —, ethyl acetate and benzene for, 2583.  
 —, —, ethylidene acetate for, 2582.  
 —, —, ethylidene diacetate for, 2582.  
 —, —, ethyl lactate for, 2582.  
 —, —, glycerol esters for, 2582.  
 —, —, glycol ester for, 2582.  
 —, —, gum-para for, 2583.  
 —, —, lactic esters for, 2582.  
 —, —, mastic for, 2583.  
 —, —, nitromethane for, 2582.  
 —, —, para gum for, 2583.  
 —, —, resinolates for, 2582.  
 —, —, salicylaldehyde for, 2582.  
 —, —, vinyl ester for, 2582.  
 —, —, xylene for, 2582.  
 —, —, substitutes for, 2491.  
 —, —, surface tension, 2490.  
 —, —, synthetic, 2469, 2488.  
 —, —, total radiation of, 2495.  
 —, —, unflammable, 2493.  
 —, —, uses, 2491.  
 —, —, viscosity cellulose nitrate in, 1737, 1739.  
 Amyl acetic acid, 2386.  
 Amyl acetic ester, see Amyl acetate.  
 Amyl acetoacetate, 2495.  
 Amyl acetosalicylate, 2496.  
 Amyl acetylsalicylate, cellulose ester solvent, 2537.  
 Amyl amidoformate, see Amyl carbamate.  
 Amyl alcohol, see also Fusel oil, refined.  
 ter-Amyl alcohol, see Amylene hydrate.  
 Amyl alcohol, 167, 2382, 2446.  
 Amyl alcohol, action on lignocellulose, 262.  
 —, —, alcohol recovery by, 2558.  
 —, —, cellulose acetate solvent, 3026.  
 —, —, ether recovery by, 2558.  
 —, —, extracting resin from wood by, 289.  
 —, —, purifying cotton by, 562.  
 —, —, reaction with lignocellulose, 262.  
 —, —, smokeless powder containing, 1764.  
 —, —, solubility acetic acid in, 2999.  
 —, —, stabilizer, 2942.  
 —, —, synthesis of rubber with, 2469.  
 iso-Amylallyl ether, 2394.  
 Amylase, 125, 474, 482.  
 Amyl benzoate, 2387.  
 —, —, cellulose ester solvent, 2537.  
 Amyl borate, 2386.  
 —, —, reducing inflammability cellulose nitrate by, 1786.

- Amyl bromo benzoate, 2387.  
 Amyl bromonitro benzoate, 2387.  
 Amyl bromocitrate, 2387.  
 Amyl bromonitro citrate, 2387.  
 Amyl bromo hippurate, 2387.  
 Amyl bromonitro hippurate, 2387.  
 Amyl bromo lactate, 2387.  
 Amyl bromonitro lactate, 2387.  
 Amyl bromonitro mesitylenate, 2387.  
 Amyl bromonitro mesitylenate, 2387.  
 Amyl bromonitro oxalate, 2387.  
 Amyl bromo oxalate, 2387.  
 Amyl bromonitro phthalate, 2387.  
 Amyl bromo phthalate, 2387.  
 Amyl bromonitro toluate, 2387.  
 Amyl bromo toluate, 2387.  
 Amyl bromonitro salicylate, 2387.  
 Amyl bromo salicylate, 2387.  
 Amyl bromonitro succinate, 2387.  
 Amyl bromo succinate, 2387.  
 Amyl bromonitro tartrate, 2387.  
 Amyl bromo tartrate, 2387.  
 Amylisobutyl oxide, *see* Amylisobutyl ether.  
 Amyl butyrate, 2386, 2508.  
 —, cellulose nitrate solvent, 2394  
 —, solubility, 2489.  
 Amyl caproate, cellulose nitrate solvent, 2394.  
 Amyl carbamate, cellulose ester solvent, 2536.  
 Amyl carbanilate, cellulose ester solvent, 2537.  
 Amyl carbonate, *see* Phenylamyl ether  
 —, cellulose ester solvent, 2536.  
 Amyl chloracetate, 2385, 2386, 2496  
 Amyl chloride, 2385, 2386.  
 Amyl chlornitro benzoate, 2387.  
 Amyl chlornitro citrate, 2387.  
 Amyl chlornitro hippurate, 2387.  
 Amyl chlornitro lactate, 2387.  
 Amyl chlornitro mesitylenate, 2387.  
 Amyl chlornitro oxalate, 2387.  
 Amyl chlornitro phthalate, 2387.  
 Amyl chlornitro salicylate, 2387.  
 Amyl chlornitro succinate, 2387.  
 Amyl chlornitro tartrate, 2387.  
 Amyl chlornitro toluate, 2387.  
 Amyl chloro benzoate, 2387.  
 Amyl chloro citrate, 2387.  
 Amyl chloro hippurate, 2387.  
 Amyl chloro lactate, 2387.  
 Amyl chloro mesitylenate, 2387.  
 Amyl chloro oxalate, 2387.  
 Amyl chloro phthalate, 2387.  
 Amyl chloro salicylate, 2387.  
 Amyl chloro succinate, 2387.  
 Amyl chloro tartrate, 2387.  
 • Amyl chloro toluate, 2387.  
 Amyl citrate, 2387.  
 iso-Amyl citrate, cellulose acetate solvent, 3036.  
 Amyl dicresyl phosphate, cellulose ester solvent, 2541.  
 Amyl dinaphthyl phosphate, cellulose ester solvent, 2541.  
 Amyl diphenyl phosphate, cellulose ester solvent, 2541.  
*b*-iso-Amylene, *see* Pental.  
 Amylene, 1783.  
 Amylene diacetate, cellulose nitrate solvent of benzene and, 2390.  
 Amylic ether *see* Amyl oxide.  
 Amyl ether, 2386.  
 Amyl-ethyl acetate, 2386.  
 Amyl formate, 232.  
 iso-Amyl formate, 2388, 2497.  
 Amyl formate, celluloid lacquer containing, 2578.  
 —, illuminating power of, 2494.  
 —, solubility, 2489, 2497.  
 Amyl hippurate, 2387.  
 Amyl hydride, *see* Pentane.  
 Amylic (inactive) alcohol, *see* Alcohol, amyl.  
 Amylidenediethyl ether, 2384.  
 —, cellulose acetate solvent, 3040.  
 Amylidenedimethyl ether, 2384.  
 Amyline, 2975.  
 Amyl lactate, cellulose ester solvent, 2387, 2543, 3029, 3036.  
 Amyl-lactic acid, 2388.  
 Amyl mesitylenate, 2387.  
 Amyl methyl ketone, 2397.  
 Amyl monochloracetate, 2490.  
 Amyl nitrate, 953, 2383, 2385.  
 Amyl nitrite, 2386.  
 Amyl nitro benzoate, 2387.  
 Amyl nitro citrate, 2387.  
 Amyl nitro hippurate, 2387.  
 Amyl nitro lactate, 2387.  
 Amyl nitro mesitylenate, 2387.  
 Amyl nitro oxalate, 2387.  
 Amyl nitro phthalate, 2387.  
 Amyl nitro salicylate, 2387.  
 Amyl nitro succinate, 2387.  
 Amyl nitro tartrate, 2387.  
 Amyl nitro toluate, 2387.  
 Amyloacetic ether, *see* Amyl acetate.  
 Amylocellulose, 125, 431, 440, 481.  
 Amylodextrin, 404, 427, 432, 464, 476.  
 Amylodextrose, 441.  
 Amyloform, 421.  
 Amylogen, 471.  
 Amyloid, 7, 100, 125, 127, 190, 481, 529.  
 Amyloid, Flechsig's, 148.

- Amyloid, protein, 125.  
 Amyloin, 473, 476.  
 Amyolytic enzymes, 562.  
 Amylopectin, 412, 427, 484, 483.  
 Amylophosphoric acid, 445.  
 Amyloplast, 397.  
 Amyloplasia, 1838.  
 Amylose, 427, 481, 483.  
 Amyloses, 6.  
 Amyl oxalate, 2387.  
 Amyl oxalate, cellulose acetate solvent, 3036.  
 Amyl oxamate, cellulose ester solvent, 2540.  
 Amyl phenate, *see* Amyl carbonate.  
 Amyl phthalate, 2387.  
 —, cellulose ester solvent, 2546.  
 Amyl propionate, 2507.  
 Amyl propionate, cellulose nitrate solvent, 2394.  
 —, dissolving nitric acid by, 1467.  
 —, solubility, 2489.  
 Amyl salicylate, 2387, 2491.  
 Amyl silicate, reducing inflammability cellulose nitrate by, 1787.  
 Amyl succinate, 2386, 2387.  
 Amyl tartrate, cellulose ester solvent, 2387, 2536, 3036.  
 —, paint remover containing, 2506.  
 Amyl toluate, 2387.  
 Amyl trichloroacetate, 2490.  
*ter*-Amylurea, *see* Amylcarbamide, *ter*-biary.  
 Amyl urethane, *see* Amyl carbamate.  
*iso* Amyl isovalerate, 2394.  
 Amyl valerate, 2506.  
 —, cellulose nitrate solvent, 2394.  
 —, dissolving nitric acid by, 1467.  
 —, illuminating power of, 2404.  
 Anaesthesin, *see* Ethyl *p*-aminobenzoic acid.  
 Anaesthone, *see* Anaesthesin.  
 Analgen, *see* Quinalgen.  
 Analgesine, *see* Antipyrine.  
 Anchoic acid, *see* Azelaic acid.  
 Anchusin, *see* Alkanin.  
 Anemone, *see* Anemonin.  
 Anemometer, 1240.  
 —, differential, 1240.  
 —, Fletcher, 1240.  
 —, Peclet's, 1240.  
 —, Seger's, 1242.  
 —, Swan's, 1242.  
 Anethol, reaction with lignocellulose, 262.  
 —, clearing celloidin by, 2782.  
 Angeli stability test, 2367.  
 Angina pectoris, nitroerythrite for, 1860, 1861.  
 Anhydrite, *see also* Calcium sulfate.  
 Anhydrite, 1027, 1129.  
 —, sulfuric acid from, 1300.  
 Anhydroglucochloral, *see* Chloralose.  
 Anhydrous butyl chloral, *see* Butyl chloral.  
 Anhydrous phthalic acid, *see* Acid, phthalic anhydride.  
 Anhydrous valeric acid, *see iso*-Valerianic acid.  
 Anilids, cellulose acetate solvent, 3039.  
 —, nitrostarch stabilizer, 1828.  
 Aniline, 2528, 2943, 2963, 3060.  
 —, cellulose nitrate, gelatinizer, 1885, 2552.  
 —, cellulose nitrate lacquer containing, 2593.  
 —, clearing celloidin with, 2782.  
 —, dissolving cellulose acetate by, 3007.  
 —, extracting sulfur with, 1038.  
 Aniline, iodizer addition to, 2813.  
 Aniline, miscibility with turpentine, 2571.  
 —, nitrosaccharose stabilizer, 1851.  
 —, paint remover containing, 2567.  
 —, smokeless powder containing, 1704.  
 Aniline-sodium acetate, reagent, 366.  
 Aniline, stabilizing nitrostarch by, 1826.  
 Aniline bisulfate, acetating cellulose in presence of, 3010.  
 Aniline black, 162, 3078.  
 Aniline bromide, 2810.  
 Aniline chloride, 2810.  
 Aniline dyes, manufacture, recovery nitric acid in, 947.  
 Aniline green, 164.  
 Aniline hydrochloride, nitrostarch stabilizer, 1828.  
 Aniline nitrate, nitrostarch stabilizer, 1828.  
 Aniline oil, *see* Aniline.  
 Aniline oxalate, nitrostarch stabilizer, 1828.  
 Aniline resinate, cellulose acetate solvent, 3035.  
 Aniline salts, reaction with lignocellulose, 262.  
 Aniline sulfate, acetating cellulose in presence of, 3010.  
 —, nitrostarch stabilizer, 1828.  
 Aniline trichloride, cellulose ester solvent, 2539.  
 Aniline yellow, 2875.  
 —, *see also* Amino-*iso*-benzene (*p*).  
 Amino acetic acid, *see* Phenyl-glycine.

- Animal celluloses, 4, 325.  
 Animals, digestion cellulose by, 345.  
 —, intestines of, gases from, 346.  
 —, nitrostarch as food for, 1570.  
*Animi*, see *Copal*.  
*Anise camphor*, see *Anethol*.  
*Anisol*, see also *Methyl-phenyl ether*.  
*Anisol*, 2385.  
 —, action on lignocellulose, 262.  
 —, cellulose ester solvent, 2343, 3043.  
*Anisol-methyl alcohol*, 2278.  
 —, viscosity cellulose nitrate in, 1737.  
*Anisyl alcohol*, see *Anisic alcohol (p.)*.  
 Annato, coloring cellulose nitrate with 2790.  
 Antacids, 2535.  
 Anthocyanin, 495, 501.  
 Anthracenesulfonic acid, 249.  
*Anthranilic acid*, see *o-Amidobenzoic acid*.  
 Anthraquinone, 2384.  
 Anthraquinoneazines, 174.  
 Antigens, filtration, collodion bags for, 1773.  
*Antifebrin*, see *Acetanilid*.  
 Antibenzinepyrin, 1785.  
 Antimony, catalyst inhibitor, 905.  
 Antimony, contact poison, 1158.  
 Antimony chloride, 1120.  
 Antimony (ic) chloride, coloring celluloid by, 1896.  
 —, dissolving cellulose by, 67, 109.  
 Antimony (ous) chloride, cellulose acetate solvent, 3046, 3050.  
 Antimony chloride, reducing inflammability cellulose nitrate by, 1790.  
 Antimony oxide, catalyst, 1120.  
*Antimony pentachloride*, see *Antimony (ic) chloride*.  
 Antimony oxychloride, paint remover containing, 2564.  
 Antimony sulfide, 2972.  
 Antimony (ic) sulfide, coloring celluloid by, 1896.  
 Antimony sulfide, sulfur in, determining, 1042.  
*Antimony trichloride*, see *Antimony (ous) chloride*.  
 Antimonyl chloride, paint remover containing, 2564.  
*Antipyrin carbolate*, see *Phenopyrine*.  
*Antipyrin iodide*, see *Iodopyrine*.  
*Antipyrin mandelate*, see *Tussol*.  
*Antipyrin phenylglycolate*, see *Tussol*.  
*Antipyrin salicylate*, see *Salipyrin*.  
 —, cellulose ester solvent, 2545.  
*Antique leather*, see *Leather, antique*.  
*Antiseptic pencil*, see *Pencil, antiseptic*.  
 Apatite, Canadian, 808.  
 Apiroid, 1787, 2609.  
 Apomorphine, preserving collodion emulsions by, 2846.  
 Apomorphine acetate, preserving collodion emulsions by, 2846.  
*Aponal*, see *Amyl carbamate*.  
*Apple acid*, see *Malic acid*.  
*Apple oil*, see *Amyl valerianate*.  
 Apples, starch from, 447.  
 Apyrite, 2968.  
 Aquadag, cellulose ester sol 2552.  
 Araban, 7.  
 Arabic acid, 99.  
 Arabic acid-nitrile-tetracetate, 183.  
*Arabin*, see also *Arabic acid*.  
 Arabin, 7, 420.  
 Arabinose, 7.  
 Arabinose tetracetate, 83, 1846.  
 Arabinose tetranitrate, 1846.  
 Arabiose, 7.  
*Arabile*, see *Arabitol*.  
 Arabite pentanitrate, 1848.  
 Arachidic acid, paint remover containing, 2565.  
*Arachic acid*, see *Arachidic acid*.  
 Aramina fiber, 246.  
 Arbutine, testing nitric acid by, 963.  
*Argentio*, see *Silver*.  
 Argonite, 2669, 3045.  
 Arkite, 2967.  
 Aristol, cellulose nitrate and, 2792.  
 Arlington paste, 1694.  
 Arms, doll, celluloid, 2730.  
*Aromatic amines*, see *Amines, aromatic*.  
 Arrhenius formula, 1746.  
 Arrow root, starch from, 446.  
 Arsenic, catalyst inhibitor, 905.  
 —, contact poison, 1158.  
 —, determination of, 1340.  
 —, determining in brimstone, 1039.  
 —, determining in niter cake, 811.  
 —, determining in oleum, 1127.  
 —, determining in pyrites, 1054.  
 —, elimination of, 1340.  
 —, estimation, 1336.  
 —, Gutzzeit test for, 1127.  
 —, removal, acetylene tetrachloride for, 1110.  
 —, removal, dichlorobenzene for, 1110.  
 Arsenic acid, concentrating arsenic acid with, 991.  
 Arsenic bromide, 2810.  
 Arsenic iodide, 2810.  
 Arsenic pentoxide, catalytic action of, 1102, 1122.

- Arsenic trichloride, determining arsenic as, 1340.  
 Arsenites, precipitating cuprammonium cellulose with, 76.  
 Arsenous acid, coloring celluloid by, 1890.  
*Arsenous hydride*, see *Arsine*.  
 Arsenous oxide, 807.  
 —, nitrogen trioxide from nitric acid and, 716.  
 Arsenous sulfide, coloring celluloid by, 1896.  
 Arsine, 1192. *f*  
*Artificial almond oil*, see *Benzaldehyde*.  
*Artificial bristles*, see *Bristles*, artificial.  
*Artificial camphor*, see *Camphor*, artificial.  
*Artificial chamois*, see *Chamois*, artificial.  
*Artificial cork*, see *Cork*, artificial.  
*Artificial essential oil of almond*, see *Benzaldehyde*.  
*Artificial filaments*, see *Filaments*, artificial.  
 —, cellulose for, purification of, 28.  
 —, wood pulp for, 285.  
*Artificial foil*, see *Foil*, artificial.  
*Artificial hair*, see *Hair*, artificial.  
*Artificial horse hair*, see *Horse hair*, artificial.  
*Artificial leather*, see *Leather* artificial.  
*Artificial musk*, see *Trinitro-tertiary-butyl-toluene* (2,4,6).  
*Artificial oil of ants*, see *Furfural*.  
 —, artificial oil of wintergreen, see *Methyl salicylate*.  
*Artificial ostrich feathers*, see *Feathers*, ostrich.  
*Artificial rubber*, see *Rubber*, artificial.  
*Artificial silk*, see *Silk*, artificial; *Filaments*, artificial.  
*Artificial sponge*, see *Sponge*, artificial.  
*Artificial stone*, see *Stone*, artificial.  
*Artificial straw*, see *Straw*, artificial.  
*Artificial tulle*, see *Tulle*, artificial.  
 Artificial wool, 336.  
 Asbestos, platinized, 916, 1113, 1190.  
 —, diaphragms, 335.  
 Aschan smokeless powder, 1812.  
 Ascidia, cellulose in, 325.  
 Asclepias syriaca, nitrating, 1874.  
 Ash, cellulose, 239.  
 —, composition of, 254.  
 —, cotton, 27.  
 —, determining in cellulose nitrate, 2296.  
 —, manna in, 1863.  
 Askau process, 2879, 2882.  
 Asparagose, 7.  
*Asparamide*, see *Asparagin*.  
*Asparagic acid*, see *Asparaginic acid*.  
*Asparagine*, see *Asparagin*.  
*Aspartic acid*, see *Asparaginic acid*.  
*Aspergillus glaucus*, 346.  
*Aspergillus niger*, 189, 404, 1710.  
 Asphalt, photographs on, 2797.  
 —, sulfur in, determining, 1042.  
*d'Aspic*, see *Oil d'aspic*.  
*Aspirin*, see *Acetyl-salicylic acid*.  
 Aspidiospermine, 1335.  
 Assam cotton, constants of, 506.  
 Astral oil, 1850.  
 Astronomical instruments, celluloid in, 2695.  
 Astronomical work, collodion for, 2912.  
 Atlas dynamite, manufacture of, 1819, 2968.  
*Atmospheric nitrogen*, see *Nitrogen*.  
*iso-Atropic acid*, see  *$\alpha$ -Truxillic acid*.  
 Attrition sheets, celluloid for, 2697.  
*Aubepine*, see *Aldehyde*, anisic.  
 Auramine, dyeing cellulose acetate with, 3055.  
 Aurantia, 2875.  
 Auric, see *Gold(ic)*.  
 Aurine, 2875.  
 Aurine-collodion, 2872.  
 Aurosit, 2586.  
 Australian cotton, length of fibers, 509.  
 Australian Eucalypti, 1806.  
 —, —, nitrating, 1879.  
 Australian Grass tree, gum from nitrating, 1869.  
 —, —, nitrating, 1879.  
 Australian Melaleuca, 1806.  
 —, —, nitrating, 1879.  
 Autochrome plates, 2877.  
 Autoclaves, coating with Bakelite, 2768.  
 Autoplast, 2795.  
*Aviation*, see also *Aeronautics*, *Aircraft*, *Balloon*.  
 Aviator helmet, celluloid, 2702.  
 Avolin, 2393.  
 Awkraw, 246.  
 Axite, 2967.  
 Axtell powder, 2930.  
*Azobenside*, see *Azobenzene*.  
*Azobenzol*, see *Azobenzene*.  
 Azobenzene, cellulose ester solvent, 2544.  
 Azolitmin, preparing, 2299.  
 —, —, Meyer method, 2300.  
 —, —, Worden method, 2300.

- Baby comforters, see Comforters, baby.*  
*Baby soothers, see Soothers, baby.*  
*Bacillus amylobacter*, 342, 418.  
*Bacillus amyloctenicus*, 343.  
*Bacillus amyloxyticus*, 418.  
*Bacillus bibulops*, 343.  
*Bacillus butyræus*, 418.  
*Bacterium burdigalense*, 418.  
*Bacillus carotovorus*, 343.  
*Bacillus fimi*, 343.  
*Bacillus macerans*, 418, 445.  
*Bacillus suaveolens*, 419.  
*Bacillus subtilis*, 343, 346.  
 Bacteria, decomposition cellulose by,  
     15.  
     —, denitrifying, action of, on cellulose nitrate, 1710.  
 Baelen dynamite, 2969.  
 Baendisch powder, 1809.  
 Baffoodo julo, 246.  
 Bags, cellulose nitrate, 1773.  
     —, collodion, 1773.  
     —, recovery sodium nitrate from, 739.  
 Bahia cotton, constants of, 505.  
 Bakelite, 2767.  
     —, coating autoclaves with, 2768.  
     —, commutator bars of, 2778.  
     —, lining boiling vats with, 2081.  
 Ballistics, 1793.  
 Ballistite, action ultra-violet rays on,  
     1763.  
     —, 1735, 1952, 2943, 2949, 2969.  
     —, decomposition of, 1715.  
     —, decomposition, gases evolved in,  
         1764.  
     —, stability, determining, 2330, 2337.  
 Ball method viscosity, 2280.  
*Balls, billiard, see Billiard ball.*  
 Balls, hollow, celluloid for, 2722.  
*Balloon, see also Aircraft, Aviation, Aeronautics.*  
 Balloons, celluloid, 2729.  
     —, celluloid sheets for, 2683.  
     —, cellulose nitrate for, 1887.  
     —, envelopes, celluloid lacquers for,  
         2579.  
     —, fabric for, 3049.  
     —, toy, nitrated paper for, 1816.  
*Balsam, see Copaiba.*  
*Balsam fr.*, composition of, 261.  
*Balsam*, nitrated, 1870.  
*Balsam Peru, see Peru balsam.*  
*Balsam tolu, see Tolu balsam.*  
 Bamboo, ash in, 244.  
     —, cellulose in, 244.  
     —, constants of, 244.  
     —, lignin in, 244.  
     —, moisture in, 244.  
 Bamboo, nitration of, 329.  
     —, pectic matter in, 244.  
     —, protein in, 244.  
*Banana ether, see Amyl acetate.*  
*Banana oil, see Amyl acetate.*  
 Bananas, amyl acetate in, 2488.  
     —, starch from, 447.  
 Bandages, celluloid, 2742.  
     —, suspensory, celluloid, 2742.  
 Bangles, celluloid, 2712.  
 Baobab, wood, nitrated, 1812, 1878.  
*Baras camphor, see Borneol.*  
 Barette, celluloid, 2714.  
 Barium acetate, smoke reducer in powder, 2984.  
 Barium acetate, stabilizing cellulose nitrate with, 1703.  
 Barium borate, smoke reducer in powder, 2984.  
 Barium bromide, dissolving cellulose by formic acid and, 110.  
 Barium carbonate, neutralizing spent acid by, 1421, 2032.  
     —, smoke reducer in powder, 2984.  
 Barium cellulose-sulfate, 96, 97, 201.  
 Barium chloride, determining sulfuric acid with, 1053.  
     —, reducing inflammability cellulose nitrate by, 1779, 1780.  
 Barium chromate, reducing inflammability cellulose nitrate by, 1779, 1780.  
 Barium citrate, cellulose nitrate solvent of alcohol and, 2388.  
     —, smoke reducer in powder, 2984.  
     —, stabilizing cellulose nitrate by, 1703.  
 Barium dioxide, purifying sulfuric acid by, 1248.  
 Barium glycolate, 1665.  
 Barium hydrosulfide, 788.  
 Barium hydroxide, 2823.  
     —, hydrolyzing cellulose nitrate with, 1718.  
     —, precipitating by cellulose, 36.  
     —, saponifying with, 618.  
 Barium hydroxypyrocarmate, 1660.  
 Barium iodide, reducing inflammability cellulose nitrate by, 1779, 1780.  
 Barium lactate, cellulose nitrate solvent of alcohol and, 2388.  
 Barium levulinate, cellulose nitrate solvent of alcohol and, 2388.  
 Barium ligninsulfonate, 26.  
 Barium-magnesium iodide, dissolving cellulose by, 68.  
 Barium malate, 1665.  
 Barium malonate, 1666.



- Barium-mercuric iodide/ dissolving cellulose by, 108.  
 Barium naphtholate, 2529.  
 Barium nitrate, 2925, 2928, 2939, 2965, 2966, 2970, 2971, 2972, 2973, 2974, 2975, 2976  
 —, cellulose nitrate explosive containing, 1625.  
 —, explosive of cellulose nitrate and, 1623, 2629.  
 —, explosive of nitrolignin and, 1809.  
 —, fortifying spent acid by, 1421.  
 —, increasing collodion sensitiveness by, 2816.  
 —, manufacturing, 947.  
 Barium oxalate, 1665.  
 —, cellulose nitrate solvent of alcohol and, 2388.  
 —, smoke reducer in powder, 2984.  
 Barium oxide, catalyst, 917.  
 —, producing nitrogen with, 685  
 Barium phosphate, reducing inflammability cellulose nitrate by, 1779, 1780.  
 Barium picrate, explosive of nitro-starch and, 1821.  
 Barium sulfate, 3082  
 —, clarifying spent acid by, 1413  
 —, manufacturing glass with, 1129  
 Barium tartrate, smoke reducer in powder, 2984.  
 —, stabilizing cellulose nitrate by, 1703.  
 —, cellulose nitrate solvent of alcohol and, 2388.  
 Barium thiocyanate, dissolving cellulose by, 108.  
 Barium trihydroxyglutarate, 1666.  
 Bark, composition of, 11.  
 Barley, bleaching, sulfur dioxide for, 1099.  
 —, starch in, 446  
 Barometer readings, correction for (table), 1521.  
*Baryta*, see *Barium hydroxide*.  
 Baryta paper, 2852.  
 Bas reliefs, celluloid for, 2917.  
*Basic (tri-) formic ether*, see *Ethyl o-formate*.  
*Basic nigrosines*, see *Nigrosines, basic*.  
 Basorin, 7, 420.  
 Bast, artificial, cellulose nitrate for, 2644.  
 Bastock, 253.  
 Batties, storage, envelopes for, cellulose nitrate, 2598.  
 Battery, galvanic, separators for, cellulose nitrate, 1766.  
 Battery separators, cellulose nitrate, 1698, 1888, 1893.  
 Bauhinia VahlII, nitrating, 1877.  
 Baumé, conversion to specific gravity (table), 1525.  
 Bautzen powder, 1810.  
 Bauxite, 806, 922.  
 —, alum from niter cake and, 789.  
 Bayberry wax, paint remover containing, 2565.  
 Baykogarne, 3053.  
 Beads, celluloid, 2711.  
*Beauxite*, see *Bauxite*.  
 Beech, ash in, 244.  
 —, cellulose in, 244.  
 —, composition of, 254.  
 —, constants of, 244.  
 Beech, hydrolyzing, 204.  
 —, lignin in, 244.  
 —, moisture in, 244.  
 —, nitration of, 322.  
 —, pectic matter in, 244.  
 —, protein in, 244.  
 Beech tar creosote, cellulose nitrate lacquer containing, 2393.  
 Beer, dry plate preservative, 2833.  
 —, filtering, cellulose nitrate for, 1892.  
 Beeswax, 2963.  
 —, paint remover containing, 2565  
 —, reducing inflammability cellulose nitrate by, 1785.  
 —, waterproofing cellulose nitrate with, 1618.  
 Beet, nitration of, 1873.  
 Beet sugar, nitrating, 1851.  
 Beets, starch from, 447.  
 Belladonna collodion, 2794.  
 Bellinite, 2968, 2969.  
 Bellite, 1637.  
 Belt, celluloid, 2711.  
 Belt fastener, celluloid, 2711.  
 Benders cotton, constants of, 505.  
 Bengal cotton, constants of, 506.  
 —, diameter of fibers, 508.  
 —, wax in, 536.  
*Benzal chloride*, see *Benzylidene chloride*.  
 Benzaldehyde, amyl acetate substitute, 2582.  
 —, cellulose nitrate solvent, 2388.  
 —, paint remover containing, 2566.  
 Benzamide, nitrostarch stabilizer, 1828.  
*Benzamidoacetic acid*, see *Hippuric acid*.  
*Benzaminoic acid*, see *m-Amidobenzoic acid*.  
*Benzanalgen*, see *Quinalgen*.

- Benzanilid, cellulose ester solvent, 2545.
- Benzene, 2252.
- Benzene, borated, see Borated benzene.*
- , cellulose nitrate solvent of tetrachlorethane and, 2393.
- , cellulose nitrate solvent of alcohol, amyl acetate and, 2391.
- , co-nitration starch and, 1829.
- , effect of, on viscosity cellulose nitrate, 1740.
- , extracting impurities from cellulose nitrate by, 2081.
- , nitration of, 1425, 1693.
- , paint remover containing, 2562.
- , removing arsenic by, 1342.
- , solvent of ethyl acetate and, 2504.
- Benzene-alcohol, cellulose nitrate solvent, 2393.
- Benzylamidophenylmercaptan, see Benzylamidothiophenol.*
- Benzenesammonia powder, 2069.
- Benzene and ethyl acetate, amyl acetate substitute, 2583.
- Benzenesulfo-benzene, see Azobenzene.*
- Benzene benzylnitrochloride, cellulose ester solvent, 2540.
- Benzene bromide, cellulose ester solvent, 2540.
- Benzene chloride, cellulose ester solvent, 2540.
- Benzenhexacarboxylic acid, see Mellitic acid.*
- Benzene nitrobromide, cellulose ester solvent, 2540.
- Benzene nitrochloride, cellulose ester solvent, 2540.
- Benzenesulfamid, 2530.
- , cellulose ester solvent, 2547.
- Benzenesulfanilid, cellulose ester solvent, 2547.
- Benzenesulfonic acid, acetating cellulose in present of, 3009, 3011.
- Benzenesulfo-*o*-chloranilid, cellulose ester solvent, 2547.
- Benzenesulfodiethylamid, cellulose ester solvent, 2547.
- Benzenesulfodimethylamin, cellulose ester solvent, 2547.
- Benzenesulfodiphenylamin, cellulose ester solvent, 2547.
- Benzenesulfoethylamid, cellulose ester solvent, 2547.
- Benzenesulfoethylanilid, cellulose ester solvent, 2547.
- Benzenesulfo-methylanilid, cellulose ester solvent, 2547.
- Benzenesulfo-*o*-naphthylamine, cellulose ester solvent, 2547.
- Benzenesulfo-*b*-naphthylamin, cellulose ester solvent, 2547.
- Benzene sulfonates, 2529.
- Benzenesulfonic acid, 249.
- Benzenesulfo-*o*-phenetidin, cellulose ester solvent, 2547.
- Benzene-*p*-phenetidin, cellulose ester solvent, 2547.
- Benzenesulfo-*o*-toluid, cellulose ester solvent, 2547.
- Benzene tetracarboxic acid (1,2,4,5), see Pyromellitic acid.*
- Benzene tricarboxylic acid (1,2,3), see Hemimellitic acid.*
- Benzenes, heavy, turpentine substitute containing, 2569.
- Benzoyl trichloride, see Benzotrichloride.*
- Benzhydrol, cellulose acetate solvent 3028.
- Benzhydrol, see also Diphenyl-carbinol*
- Benzin, cellulose ester solvent, 2543.
- Benzidine, cellulose acetate solvent, 3040.
- , determining sulfates with, 1328.
- , dyeing cellulose acetate by, 3055.
- , precipitation of sulfuric acid by, 1055.
- Benzidine-diazo-di-1-naphthylamine-4-sulfonic acid, 2871.
- Benzidine-diazo-*o*-naphthylglycin-1-naphthylamine-4-sulfonic acid, 2872.
- Benzidine hydrochloride, 1328.
- Benzidine sulfate, 1055, 1328.
- Benzil, see Benzile*
- Benzine, cellulose nitrate with, 2574.
- , dissolving cellulose acetate by, 3007.
- , drying cellulose nitrate by, 2157.
- , effect of, on viscosity cellulose nitrate, 1740.
- , iodizer addition to, 2812, 2813.
- Benzite, 2062.
- Benzodiacetin, 2384.
- Benzoic acid, 236, 2822.
- , amyl acetate substitute, 2582.
- , paint remover containing, 2563.
- Benzoic aldehyde, see Benzaldehyde.*
- Benzoic ether, see Ethyl benzoate.*
- Benzoic trichloride, see Benzotrichloride.*
- Benzoglycolic acid, see Mandelic acid.*
- Benzoïn, celluloid lacquer containing, 2578.
- , cellulose nitrate lacquer with, 2593.
- , coloring, • cellulose nitrate by, 2791.

- Benzoin, dry plate preservative, 2829.  
 —, iodizer addition to, 2813.  
*Benzol*, see *Benzene*.  
 Benzol, manufacturing, waste acid from, recovery of, 1308.  
 Benzolacetone, action of acetic anhydride on, 189.  
*Benzolazoaniline*, see *Diazo amidobenzene*.  
 Benzochlorhydrin, cellulose nitrate solvent, 2384.  
*Benzoline*, 1754, 1887, 2064.  
 Benzomonooacetin, 2384.  
*Benzonaphthol*, see also *b-Naphthol benzoate*.  
 Benzonaphthol, cellulose ester solvent, 2538, 3035.  
 Benzopurpurin, 180, 220, 229.  
 Benzopurpurin 4B, 220, 380.  
*Benzoquinone*, see *Quinone*.  
*Benzosol*, see *Benzoylguaiacol*.  
 Benzosol, cellulose ester solvent, 2549.  
*Benzosol*, see also *Benzoylguaiacol*.  
*Benzothiophene*, see *Thionaphthalene*.  
 Benzotrichloride, cellulose ester solvent, 2539.  
*Benzoylacetie ether*, see *Ethyl benzoylacetate*.  
*Benzoylamidoacetic acid*, see *Hippuric acid*.  
*Benzoylanilid*, see *Benzanilid*.  
*Benzoylation*, see *Cellulose, benzoylation*.  
 Benzoylbenzenesulfamid, cellulose ester solvent, 2547.  
*Benzoylcellulose*, see *Cellulose benzoate*.  
 Benzoyl chloride, 217, 222, 284.  
 Benzoyl chloride, separating tannin by, 284.  
*Benzoyl formic acid*, see *Phenyl glyoxylic acid*.  
*Benzoyl glycine*, see *Hippuric acid*.  
*Benzoylglycoll*, see *Hippuric acid*.  
 Benzoylguaiacol, cellulose ester solvent, 2549.  
*Benzoyl hydride*, see *Benzaldehyde*.  
*Benzoylmethide*, see *Hyponone*.  
*Benzoyl salicin*, see *Populin*.  
 Benzoyltoluenesulfamid, cellulose ester solvent, 2547.  
*Benzylacetic*, see *Hydrocinnamic acid*.  
 Benzyl acetate, 2434.  
 —, cellulose ester solvent, 2537, 3034.  
 Benzyl acetylsalicylate, cellulose ester solvent, 2537.  
 Benzyl alcohol, 2387.  
 —, cellulose ester solvent, 2537, 3026.  
 —, paint remover containing, 2566.  
 —, viscosity cellulose nitrate in, 1737.  
 Benzylalcohol-ether, 2278.  
 Benzyl alcohol-ether, cellulose nitrate solvent, 1736.  
 Benzyl alcohol-ethyl ether, viscosity cellulose nitrate in, 1737.  
 Benzyl benzoate, 2387, 2391.  
 —, cellulose ester solvent, 2537.  
 —, paint remover containing, 2567.  
 —, physiological action of, 2537.  
*Benzyl benzol*, see *Diphenylmethane*.  
 Benzyl-borneol, 2535.  
 Benzyl camphene, 2535.  
*Benzyl carbamide*, see *Benzoyl-urea*.  
*Benzyl carbinol*, see *Phenyl-ethyl alcohol*.  
 Benzyl cellulose, naphthylamyl ether with, 2541.  
 Benzyl chloride, cellulose acetate solvent, 3043.  
 Benzyl compounds, cellulose ester solvent, 2547.  
 Benzyl cresylate, paint remover containing, 2567.  
 Benzyl-dihydrocarvon, cellulose ester solvent, 2549, 3030.  
*Benzylene chloride*, see *Benzylidene chloride*.  
 Benzylidene acetoacetic ester, cellulose acetate solvent, 3035.  
 Benzylidene diacetate, cellulose ester solvent, 2538.  
 Benzylidene glycerol, cellulose ester solvent, 2543.  
 Benzyl pentachloranilid, cellulose ester solvent, 2545.  
*Benzylphenylamine*, see *Benzylaniline*.  
 Benzyl propionate, cellulose ester solvent, 2538.  
 Benzyl salicylate, 2387.  
 Benzyl tetrachloranilid, cellulose ester solvent, 2545.  
 Benzyl-o-tolylurethane, 2254.  
*Benzylurea*, see *Benzylcarbamide*.  
 Benzyl isovalerate, 2389.  
 Berar cotton, length of fibers, 509.  
 Berberine, testing nitric acid by, 963.  
 Bergamot oil, cellulose acetate solvent, 3034.  
 Bergmann and Junk stability test, 2354.  
 —, housing for, 2358.  
*Beryllia*, see *Beryllium oxide*.  
 Beryllium, oxidizing ammonia by, 905.  
 Beryllium oxide, catalyst of, 1111, 1122.  
*Beta-Compounds*, see  *$\beta$ -compounds*.  
 Betaine chlorate, cellulose ester sol-

- vent, 2546.  
 Betaine chromate, cellulose ester solvent, 2546.  
 Betaine nitrate, cellulose ester solvent, 2546.  
 Betaine permanganate, cellulose ester solvent, 2546.  
 Beverages, filtering, cellulose nitrate for, 1892.  
 Bhindi, 246.  
 Bhownuggar cotton, constants of, 506.  
 Bibliography, cellulose, J.  
 —, colloids, 8.  
 Bicarbonates, reducing inflammability in cellulose nitrate by, 1704.  
 Bichromates, 2948.  
 —, explosive of nitrated wood and, 1812.  
 Bickford fuse, 1595.  
 Biguanidine nitrate, cellulose ester solvent, 2552.  
 Bihydrate of methylene, *see* Methyl alcohol.  
 Bilatu cotton, constants of, 506.  
 Bihneurine, *see* Choline.  
 Billiard balls, celluloid, 2723.  
 Billiard chalk holder, 2724.  
 Billiard cue tips, mounting, celluloid for, 2724.  
 Bimlipatam jute, 246.  
 Binetro compounds, *see* Dinetro compounds.  
 Biophane, 3076.  
 Biose, *see also* Cellobiose.  
 Biose, 6.  
 —, octo-acetyl, 186.  
 Biose octonitrates, 1845.  
 Biplane Wings, *see* Wings, biplane.  
 Birch, ash in, 244.  
 —, cellulose in, 244.  
 —, composition of, 254.  
 —, constants of, 244.  
 —, lignin in, 244.  
 —, moisture in, 244.  
 —, pectic matter in, 244.  
 —, protein in, 244.  
 Bisaccharide octonitrates, 1845.  
 Bismarck brown, *see* Triamino-azobenzene.  
 Bismuth, catalyst, 910.  
 —, catalyst inhibitor, 905.  
 Bismuth bromide, dissolving cellulose by, 101, 109.  
 Bismuth chloride, dissolving cellulose by, 67, 101, 108.  
 Bismuth dihydroasciylate, *see* Thioform.  
 Bismuth iodide, dissolving cellulose by formic acid and, 110.  
 Bismuth nitrate, 910.  
 Bismuth oxide, oxidizing ammonia by, 896.  
 Bisulfates, oleum from boric acid and, 1130.  
 Bisulfites, manufacture of, 1087.  
 Bitumen, combining cellulose nitrate with, 2599.  
 —, sulfur in, determining, 1042.  
 —, storage acid in vessels coated with, 958.  
 Bjorkmann explosive, 1804.  
 Black-ash, formation of, 276.  
 —, recovery of sodium carbonate from, 276.  
 Black powder, action of Roentgen rays on, 1762.  
 —, ballistics of, 1586.  
 —, viscosity of, 2276.  
 Black spruce, composition of, 260.  
 Blanc fixe, niter cake for manufacture of, 788.  
 Blankets, printers, cellulose nitrate lacquers for, 2583.  
 Blasting amberite, 2968.  
 Blasting caps, transporting, 1929.  
 Blasting cartridge, cellulose nitrate containing, 1617, 1629.  
 Blasting cartridge, *see also* Cartridge.  
 Blasting fuse, 2981.  
 —, dinitrobenzene, 1850.  
 —, gun cotton and fulminate for, 1572.  
 —, mononitronaphthalene, 1850.  
 —, nitrocellulose, 1850.  
 Blasting fuses, nitroerythrite for, 1850.  
 Blasting, nitrolignin for, 2054.  
 Blasting fuse, nitrosugar, 1850.  
 —, nitrotoluene, 1850.  
 Blasting gelatin, 1632, 1637, 2381.  
 —, cellulose nitrate for, 1731.  
 —, energy content, 1801.  
 —, mercuric chloride in, 2302.  
 Blasting gelatin, stability, determining, 2331.  
 Blasting matagnite, 2973.  
 Blasting powder, Kolf's, 1851.  
 Blasting preparation, cellulose nitrate containing, 1617.  
 Blasting, submarine, 2164.  
 Bleaching, cellulose nitrate, 2060.  
 —, acetic acid in, 613.  
 —, cotton, 604.  
 —, degree of, determining, 615.  
 —, determining degree of, 645.  
 —, oxycellulose formed in, 644.  
 Bleaching cotton, *see also* Cotton, bleaching.

- Bleaching powder, see Lime, chlorinated.*  
 Bleaching, pressure, 619.  
 —, sulfur dioxide for, 1099.  
 —, vacuum, 618.  
 Bleach out process, 2884.  
 Blende, burning, furnaces for, 1079.  
 —, furnaces, mechanical, 1078.  
 —, furnace, roasting, mechanical, 1078.  
 —, roasting, chemistry of, 1080.  
 —, roasting, composition burner gases, 1082.  
 —, roasting, gases from, composition, 1077.  
 —, roasting, separating gases from flue dust in, 1081.  
 —, smelting, statistics, 1077.  
 —, sulfur dioxide from, 1076.  
*Blending, see Cellulose nitrate manufacture.*  
 Blending tanks, 1477.  
 Blitzlicht, 2060.  
*Block printing, see Printing.*  
 Blocks, perfumed, celluloid lacquers for, 2579.  
 Blotting paper, manufacture of, 573.  
 Blue gum, composition of, 258.  
 Blue spruce, composition of, 260.  
 BN powder, 2924, 2929, 2969.  
 BNF powder, 2930.  
 Boats, small, celluloid, 2729.  
 Bode densimeter, 2306.  
 Bodice fastening, celluloid, 2711.  
 Boiling vats, 2072.  
*B. O. V., see Sulfuric acid, brown.*  
 Bolobolo, 246.  
 Boltmann's collodin, 1800.  
*Bombax cotton, see Cotton, bombax.*  
*Pombax malabaricum, 571.*  
 Bombs, explosive, transporting, 1929.  
 —, testing by Roentgen rays, 1762.  
 Bondonneau feculometer, 409.  
 Bone, artificial, cuprammonium cellulose for, 76.  
 Bone ash, 942.  
 Bonsilate, 2070, 2718.  
 Bon-tons, 2849.  
 Books, lettering, gold leaf for, 2587.  
 Boot uppers, celluloid, 2709.  
*Boracic acid, see Boric acid.*  
 Borate, contact mass of, 1400.  
 Borated benzene, reducing inflammability cellulose nitrate by, 1787.  
 • Borates, reducing inflammability cellulose nitrate by, 1786.  
 Borax, gold leaf with shellac and, 2588.  
 —, nitrostarch stabilizer, 1830.  
 —, paint remover containing, 2564.  
 Boric acid, 2821.  
 —, action of, on cotton, 117.  
 Boric acid, cellulose nitrate, with, 1786, 2574.  
 —, effect of, on viscosity cellulose acetate, 1739.  
 —, —, on viscosity cellulose nitrate, 1739, 1786.  
 —, oleum from bisulfates and, 1130.  
 —, preserving viscosity cellulose nitrate by, 1786, 1787.  
 —, preventing fog in collodion by, 2817.  
 —, reducing inflammability cellulose nitrate by, 1786.  
 —, rendering cellulose acetate incombustible by, 3057.  
 Borland's powder, 2969.  
*Borneo camphor, see Borneol.*  
 Borneol, 2525.  
 —, cellulose ester solvent, 2549.  
 Borneol,  $\alpha$ -bromisovalerate, 2535.  
 Borneol dibromdihydrocinnamic acid, cellulose ester solvent, 2548.  
 Borneol ethoxyacetate, cellulose ester solvent, 2539.  
 Borneol ethoxychloracetate, cellulose ester solvent, 2539.  
 Borneol methoxyacetate, cellulose ester solvent, 2539.  
 Borneol methoxychloracetate, cellulose ester solvent, 2539.  
*isoBorneol, 2525, 2530.*  
 —, electrolytic oxidation, 2431.  
 —, oxidizing, 2431.  
 —, chlorformate, 2530.  
 —, dibromdihydrocinnamic acid, cellulose ester solvent, 2548.  
 Bornyl acetate, 2522, 2530.  
*isoBornyl acetate, 2525, 2530.*  
 Bornyl acetate, 2530.  
 Bornyl acetate, cellulose ester solvent, 2549.  
*Bornyl acetate, see also Isobornyl acetate.*  
*Bornyl alcohol, see Borneol.*  
 Bornylene, 2519.  
 Bornyl-toluene-*p*-sulfonate, 2535.  
 Borobenzol, 2389.  
 Boroid, 2668, 3045.  
 Boron, catalyst in hibitor, 905.  
 Boron nitride, manufacture of, 920, 922.  
*Borowolframic acid, see Borotungstic acid.*  
 Boryl, 2389.  
*B powder, see Poudre B.*  
 Bottle, capping, cellulose for, 99.

- Bottle, capping, viscose for, 3082.  
 —, capsules, washers for, cellulose, 336.  
*Bottle, sealing, see Bottles, capping.*  
 Bourbon cotton, constants of, 506  
 —, diameter of fibers, 508  
 Boweds cotton, constants of, 505  
 Boyonit, 2769  
 B-powder, 1931.  
 Bracelet, celluloid, 2712  
 Bracelet fastener, celluloid, 2712.  
 Bracket's sporting powder, 2969.  
 Braid, artificial, cellulose nitrate for, 2642, 2644.  
 Brakes, celluloid, 2698.  
 Bran, nitrated, 1810  
 Brass, annealed, pickling, niter cake for, 793.  
 Brass lacquers, 2593  
 —, pickling, niter cake for, 793  
 Brazil wood, 2875  
 Bread, starch in, 5, 447  
 Bread fruit, nitrating, 1877  
 Brend-Amour emulsion A sensitizer, 2872  
 Brewster's law, 2913  
 Bricks, acid-proof, 1277.  
 —, glazing, niter cake for, 792  
 Brilliant green, leuco bases of, 2884.  
 Brilliantine, 3076  
 Brilliant yellow, 2875  
 Brimstone, analysis of, 1037.  
 —, arsenic in, determining, 1039  
 —, ash in, determining, 1040  
 —, chlorides in, determining, 1039  
 —, composition of, 1037.  
 —, impurities in, 1089.  
 —, sulfur dioxide from, 1058.  
 —, sulfur in, determining, 1038  
 Brisant cellulose, 1093  
 Bristles, artificial, 3075  
 —, cellulose acetate, 2713  
 —, agglutinating, celluloid for, 2713.  
 —, artificial, cellulose nitrate, 1880  
 British gum, 111.  
 —, action nitric acid on, 1572.  
 Broach cotton, constants of, 506  
 —, diameter of fibers, 508  
 —, length of fibers, 509.  
 Bromacetocellobiose, 189.  
 Bromaniline, nitrostarch stabilizer, 1828.  
 Brombenzene, dissolving by nitrogen tetroxide, 720.  
 Bromdiethylacetylurea, 2064  
*Bromethylformin, see Bromalin.*  
 Bromethyl cinnamate, cellulose ester solvent, 2537.  
*Brometone, see Tribrom tertiary butyl alcohol.*  
 Bromide P. O. P., 2856  
 Bromine, action of, on cellulose, 159.  
 —, collodion emulsion containing, 2846  
 —, iodizer addition to, 2812.  
 —, nitrogen tetroxide for separation of, 721  
 —, oxidizing sulfur with, 1042  
 Bromized collodion, 2806, 2840.  
 Bromomethylfurfural, 109.  
 Bromocoll, cellulose nitrate and, 2794  
 Bromoform, 163  
 Bromomethylfurfural, 15, 42, 185.  
 $\omega$ -Bromomethylfurfural, 15  
 Bromomethylfurfuraldehyde, 19.  
 $\omega$ -Bromomethylfurfuraldehyde, 19  
 Brom-methylfurfural, 159.  
*Bromol, see Tribromophenol.*  
 $\alpha$ -Bromopentane, *see Amyl bromide* (n)  
*o*-Bromphenetidin chloride, reaction with lignocellulose, 262  
 Bromophenylhydrazine, 1665.  
*Bromo (di) propane, see Propylene bromide*  
 Bromtoluidine, nitrostarch stabilizer, 1828  
 Bronolith, 2909  
 Bronze paints, 2586  
 Bronze powders, 2585  
 Bronzing liquids, cellulose nitrate for, 2032, 2381, 2572, 2585  
 Brotypes, 2849  
*Browalol, see Bornyl bromovalerate*  
 Brown cotton, constants of, 505.  
*Brown oil vitriol, see Sulfuric acid, brown*  
 Brucine, 1334.  
 Brucine, testing nitric acid by, 963  
 Brunswig's cellulith, 338.  
 Brush case, celluloid, 2714.  
 Brushes, celluloid, 2713  
 Brush lacquers, 2592  
 Buckles, celluloid, 2711.  
 Buffing, cellulith wheels for, 338.  
*Buff, split, see Skins.*  
 Buildings, danger, construction, 1914.  
 Bullet, cellulose nitrate, 1639.  
 Burner gases, acidity of, estimating, 1083.  
 Burner gas, arsenic in, removal of, 1109.  
 —, chlorine in, purifying from, 1082.  
 —, composition of, 1082, 1237, 1238.  
 —, oxygen in, determining, 1083.



- Butyl lactate, cellulose acetate solvent, 3036.  
*Butyl lactic acid*, see *Iso-oxy-butyric acid*  
 Butyl mesitylenate, 2387.  
*i*-Butyl nitrate, 2386.  
*n*-Butyl nitrite, 2386.  
 Butyl nitrobenzoate, 2387.  
 Butyl nitrocitrate, 2387.  
 Butyl nitrohippurate, 2387.  
 Butyl nitrolactate, 2387.  
 Butyl nitromesitylenate, 2387.  
 Butyl nitrooxalate, 2387.  
 Butyl nitrophthalate, 2387.  
 Butyl nitrosalicylate, 2387.  
 Butyl nitrosuccinate, 2387.  
 Butyl nitrotartrate, 2387.  
 Butyl nitrotoluene, 2387.  
 Butyl oleate, cellulose ester solvent, 2536.  
 Butyl oxalate, 2387.  
 —, cellulose acetate solvent, 3036.  
 Butyl palmitate, cellulose ester solvent, 2536.  
 Butyl phthalate, 2387.  
 Butyl propionate, 2507.  
 —, cellulose nitrate solvent, 2394.  
 —, dissolving nitric acid by, 1467.  
 Butyl salicylate, 2387.  
 Butyl silicate, reducing inflammability, cellulose nitrate, by, 1787.  
 Butyl stearate, cellulose ester solvent, 2536.  
 Butyl succinate, 2387.  
 Butyl tartrate, cellulose ester solvent, 2387, 2536.  
*iso*-Butyl tartrate, cellulose acetate solvent, 3036.  
 Butyl tartrate, rotation-dispersion of, 3036.  
 Butyl toluate, 2387.  
*iso*-Butyl tolyl ketone, 2401.  
 Butyl valerianate, 2509.  
 —, cellulose nitrate solvent, 2394.  
 —, dissolving nitric acid by, 1467.  
*Butylacetic acid*, see *Iso-oxybutyric acid*.  
*pseudo*-Butylene, 1783.  
 Butylene glycol, 1489, 2390.  
 Butylene glycol, nitrating, 1870.  
 Butyleneglycol nitrate, 1849, 1870, 2390.  
 1 : 3-Butylene glycol, 2389.  
*dioxy-Butyric acid*, see *Dioxybutyric acid*.  
 Butyric acid, 206, 340.  
 —, cellulose nitrate decomposition product, 1708.  
 —, decomposition of cellulose to, 15.  
 Butyric acid, paint remover containing, 2563.  
*Butyric ether*, see *Ethyl butyrate*.  
 Butyrin, amyl acetate substitute, 2582.  
*Butyrochloral*, see *Butyl chloral*.  
 Butyrone, 2387, 2391, 2401.  
 —, paint remover containing, 2566.  
*Butyrone*, see also *Dipropylketone*.  
*Butyronitrile*, see *Propyl cyanide*.  
*Butyro-phenone*, see *Propyl phenyl ketone*.  
*Butyrylcellulose*, see *Cellulose butyrate*.  
*Butyrylhydrocellulose*, see *Hydrocellulose butyrate*.  
 Cables, cellulose nitrate for coating, 2574.  
 —, submarine, insulating, cellulose nitrate for, 2598.  
*Cacao*, see *Cocoa*.  
*Cadaverine*, see *Pentamethylene-diamine*.  
 Cadmium, decolorizing old collodion by, 2815.  
 —, restoring collodion by, 2815.  
 Cadmium bromide, 2807.  
 —, reducing inflammability cellulose nitrate by, 1779.  
 Cadmium chloride, 2807, 2856.  
 —, coloring celluloid by, 1896.  
 —, reducing inflammability cellulose nitrate by, 1779.  
 Cadmium iodide, 2807.  
 —, decolorizing old collodion by, 2815.  
 —, reducing inflammability cellulose nitrate by, 1779.  
 —, restoring collodion by, 2815.  
 Cadmium oxide, catalyst, 1120.  
 Cadmium plumbite, oxidizing ammonia by, 897.  
 Cadmium salts, photographic uses of, 2807, 2808.  
 Cadmium sulfide, coloring celluloid by, 1896.  
 Caffeine, preserving collodion emulsions, by 2846.  
 Caffeine acetate, preserving collodion emulsions by, 2846.  
*Cajeputol*, see *Cineol*.  
 Calabria cotton, constants of, 506.  
*Calcaroni*, 1022.  
 Calico printing, 46.  
 —, oxycellulose for, 177.  
*Caloptis gigantea*, nitrating, 1877.  
 Calcium acetate, acetic acid from, 2392.  
 Calcium acetate, acetone from, 2395.  
 —, paint remover containing, 2566.



- Calcium amide, 938. \*
- Calcium arsenate, reducing inflammability cellulose nitrate by, 1780.
- Calcium arsenite, reducing inflammability cellulose nitrate by, 1780.
- Calcium bisulfite, 208, 283. \*
- Calcium bromide, 2811
- , dissolving cellulose by, 108
- , dissolving cellulose by formic acid and, 110.
- Calcium butyrate, 342
- Calcium carbide, 2994.
- , acetone from, 2396, 2399.
- , manufacture, 925
- Calcium carbonate, 2968, 2974, 2975.
- , analysis, in pyrites, 1055.
- , cellulose nitrate, containing, 2325
- , —, —, analysis, 2374.
- , cellulose nitrate stabilizer, 1716.
- , hydrolyzing cellulose nitrate by, 2095.
- , saponifying cellulose nitrate by, 2182.
- Calcium cellulose-sulfate, 97
- Calcium chlorate, celluloid substitute containing, 105
- , gelatin substitute containing, 105
- Calcium chloride, 3016
- , action of, on cellulose, 111, 263
- , celluloid lacquer containing, 2578
- , compound of acetone and, 1747.
- , diffusion through cellulose nitrate, 1775. \*
- , dissolving cellulose by, 68, 105
- , dissolving cellulose by formic acid and, 110.
- , dissolving cellulose by trichloroacetic acid and, 110.
- , drying cellulose nitrate, with, 2150
- , granulating cellulose nitrate by, 2247.
- , reducing inflammability cellulose nitrate by, 1779, 1780.
- Calcium chromate, reducing inflammability cellulose nitrate by, 1779, 1780.
- Calcium citrate, cellulose nitrate, solvent of alcohol and, 2388.
- Calcium cyanamide, 929
- , determination of nitrogen in, 930
- , granulating, 929.
- , hydrating, 930.
- , manufacturing, 926.
- , —, continuous, 931.
- , solubility of, 931.
- , storage of, deterioration on, 926
- Calcium cyanide, nitrostarch stabilizer, 1829.
- Calcium dihydroxypyruvate, 1717.
- Calcium formate, 1858, 1861.
- Calcium halide, decreasing inflammability cellulose nitrate by, 1779.
- Calcium hydrate, *see* Calcium hydroxide
- Calcium hydride, 938.
- Calcium hydroxide, decolorizing old collodion by, 2815.
- , paint remover containing, 2563.
- , restoring collodion by, 2815.
- , saponifying with, 618.
- Calcium iodide, 2811.
- , dissolving cellulose by, 108.
- , reducing inflammability cellulose nitrate by, 1779, 1780.
- Calcium lactate, cellulose nitrate solvent of alcohol and, 2388.
- Calcium levulinate, cellulose nitrate solvent of alcohol and, 2388.
- Calcium ligninsulfonate, 264.
- Calcium naphtholate 2528, 2529.
- Calcium  $\beta$ -naphthol $\alpha$ -sulfonate, *see* Asaprol
- Calcium nitrate, 993, 2182.
- , cordite decomposition containing, 1717
- , development of fungi by, 1802.
- , development moulds by, 1802.
- , explosive of cellulose nitrate and, 1629.
- , fortifying spent acid by, 1421.
- , manufacture of, 868, 878, 914, 932, 947.
- , manufacture of nitric acid from, 812.
- , powdering, 932
- Calcium nitride, 938
- Calcium nitrite, 2182
- Calcium oxalate, cellulose nitrate solvent of alcohol and, 2388.
- , reducing inflammability cellulose nitrate by, 1779, 1780
- Calcium oxide, nitric acid manufactured with, 811.
- Calcium permanganate, 1662.
- Calcium phenolate, 2528.
- di-Calcium phosphate, absorption sulfur dioxide in, 1089.
- Calcium phosphate, nitric acid in manufacture of, recovery, 948.
- , reducing inflammability cellulose nitrate by, 1779, 1780.
- Calcium picrate, 1879, 2973.
- Calcium plumbate, fixation nitrogen by, 849.
- Calcium sulfate, 2948.
- , analysis, in pyrites, 1055.

- Calcium sulfate, catalyst, 1122.  
 —, manufacture, niter cake for, 806.  
 —, manufacturing oleum from, 1128.  
 —, manufacturing glass with, 1129.  
 —, nitric acid from, 814.  
 —, reducing inflammability cellulose nitrate by, 1779, 1782.  
 —, sulfur from, 1027.  
 —, sulfuric acid from, 1129, 1297, 1300.  
*Calcium sulfite, see also Gypsum.*  
 Calcium sulfide, catalyst, 2028.  
 —, manufacture from gypsum, 1029.  
 —, paint remover containing, 2564.  
*Calcium sulfide, see also Alkali waste.*  
 Calcium sulfite, 278, 283.  
 Calcium (bi)sulfite, 208, 283.  
 Calcium sulfite, preparation of wood pulp by, 276.  
 Calcium tartrate, cellulose nitrate solvent of alcohol and, 2388.  
 Calcium thiocyanate, dissolving cellulose by, 107, 108.  
 Calcium tungstate, 2912.  
*Calche, see Sodium nitrate.*  
 Calche, analysis of, 729.  
 California explosive, 2969.  
 Calignate, 276.  
 Callosin, 2795.  
 Camera, collodion, 2799.  
 Camera obscura, 2797.  
 Camphene, 2520, 2522, 2525.  
 —, cements containing, 2535.  
 —, halogen-free, 2525.  
 —, manufacture of, 2525, 2528.  
 —, uses of, 2535.  
 —, varnishes containing, 2535.  
 Camphogine, reducing inflammability cellulose nitrate by, 1790.  
 Camphoid, 1694, 2669, 2795.  
 Camphol, 2517.  
*Camphol, see also Borneol.*  
 Camphor, 171, 2282, 2510, 2543, 2949, 2971, 2974, 2976.  
 nor-Camphor, 2535.  
 Camphor, alcoholic, viscosity cellulose nitrate solutions of, 1736.  
 —, artificial, 2517.  
 —, —, constitution, 2519.  
 —, —, refractive exponent of, 2518.  
 —, —, rotation, 2519.  
 —, cellulose acetate solvent, 3030, 3032, 3039.  
 —, cellulose nitrate solvent of carbon tetrachloride and, 1626.  
 —, cellulose nitrate solvent with propyl alcohol, 2384.  
 —, chloral with, 2517.  
 —, compressing, 2525.  
 Camphor, estimation of, 2758.  
 —, influence of, on viscosity cellulose nitrate, 1735.  
 —, iodizer addition, 2813.  
 —, menthol with, 2517.  
 —, naphthalene with, 2517.  
 —, natural, 2510.  
 —, oils and, 2517.  
 —, phenol with, 2517.  
 —, properties, 2515.  
 —, purification, 2516.  
 —, rotation of, 2515.  
 —, salol with, 2517.  
 —, solubility, 2515.  
 —, solvent of cellulose acetate, 3041, 3042.  
 —, source, 2515.  
 —, synthetic, 2517, 2520.  
*Camphor, see also Anemolin.*  
 Camphoric acid, 2822.  
 —, plastics from, 1862.  
 Camphor oil, 2516.  
 —, paint remover containing, 2566.  
 Camphor substitute, 2382.  
 —, acaroid as, 2541.  
 —, acetaldol, as, 2542.  
 —, acetanilid as, 2544, 2545.  
 —, acet-*p*-anisidide as, 2546.  
 —, acetbenzenesulfoamid as, 2547.  
 —, acetdichlorhydrin as, 2543.  
 —, acetin as, 2547.  
 —, acet- $\beta$ -naphthalid as, 2546.  
 —, acetochlorhydrose hepta-acetate as, 2549.  
 —, acetochlorhydrose mono-acetate as, 2549.  
 —, acetochlorhydrose octo-acetate as, 2549.  
 —, acetochlorhydrose tetra-acetate as, 2549.  
 —, acetonglycerol as, 2543.  
 —, acet-*p*-toluenesulfamid as, 2547.  
 —, acet-*o*-toluidide as, 2546.  
 —, acetylid as, 2545.  
 —, acetylamidophenyl amyl carbonate as, 2546.  
 —, acetylamidophenyl ethyl carbonate as, 2546.  
 —, acetylamidophenyl isobutyl carbonate as, 2546.  
 —, acetylamidophenyl methyl carbonate as, 2546.  
 —, acetyldichlorhexylamine as, 2545.  
 —, acetyldicyclohexylamine as, 2548.  
 —, acetyldiphenylamine as, 2553.  
 —, acetylethylamidophenylamyl carbonate as, 2546.  
 —, acetylethylamidophenyl ethyl carbonate as, 2546.

- Camphor substitute, acetylenyl-  
amidophenyl methyl carbonate as,  
2546.  
—, acetylhydrocellulose as, 2547.  
—, acetylmethylamidophenyl amyl  
carbonate as, 2546.  
—, acetylmethylamidophenyl ethyl  
carbonate as, 2546.  
—, acetylmethylamidophenyl iso-  
butyl carbonate as, 2546.  
—, acetylmethylamidophenyl methyl  
carbonate as, 2546.  
—, acetylmethylaniline as, 2545.  
—, acetyloxycellulose as, 2547.  
—, acetylphenylnaphthylamine as,  
2553.  
—, acetylphenyltolylamine as, 2553.  
—, aldols, as, 2542.  
—, alkyloxyphenyl compounds as,  
2547.  
—, amidobenzenesulfoazodiphenyl-  
amine as, 2553.  
—, amidosulfbenzoic acid as, 2547.  
—, amyl acetylsalicylate as, 2537.  
—, amyl benzoate as, 2537.  
—, amyl carbamate as, 2536.  
—, amyl carbanilate as, 2537.  
—, amyl carbonate as, 2536.  
—, amyl dicresyl phosphate as, 2541.  
—, amyl dinaphthyl phosphate as,  
2541.  
—, amyl diphenyl phosphate as, 2541.  
—, amyl lactate as, 2543.  
—, amyl oxanilate as, 2540.  
—, amyl phthalate as, 2546.  
—, amyl tartrate as, 2536.  
—, aniline as, 2552.  
—, aniline trichloride as, 2539.  
—, anisol as, 2543.  
—, antipyrin salicylate as, 2545.  
—, aquadag as, 2552.  
—, azobenzene as, 2544.  
—, benzanilid as, 2545.  
—, benzene benzylnitrochloride as,  
2540.  
—, benzene bromide as, 2540.  
—, benzene chloride as, 2540.  
—, benzene nitrobromide as, 2540.  
—, benzene nitrochloride as, 2540.  
—, benzenesulfamine as, 2547.  
—, benzenesulfanilid as, 2547.  
—, benzenesulfo-*o*-chloranilid as,  
2547.  
—, benzenesulfodiethylamide as,  
2547.  
—, benzenesulfodimethylamine as,  
2547.  
—, benzenesulfodiphenylamine as,  
2547.  
Camphor substitute, benzenesulfo-  
ethylamide as, 2547.  
—, benzenesulfoethylanilid as, 2547.  
—, benzenesulfo-methylanilid as,  
2547.  
—, benzenesulfo-*a*-naphthylamine as,  
2547.  
—, benzenesulfo-*b*-naphthylamine as,  
2547.  
—, benzenesulfo-*o*-phenetidin as,  
2547.  
—, benzenesulfo-*p*-phenetidin as,  
2547.  
—, benzenesulfo-*o*-toluid as, 2547.  
—, benzicin as, 2543.  
—, benzonaphthol as, 2538.  
—, benzosol as, 2549.  
—, benzotrichloride as, 2539.  
—, benzoylbenzenesulfamide as, 2547.  
—, benzoylguaicol as, 2549.  
—, benzoyltoluenesulfamide as, 2547.  
—, benzyl acetate as, 2537.  
—, benzyl acetylsalicylate as, 2537.  
—, benzyl alcohol as, 2537.  
—, benzyl benzoate as, 2537.  
—, benzyl compounds as, 2547.  
—, benzyl-dihydrocarvone as, 2549.  
—, benzyl pentachloranilid as, 2545.  
—, benzyl propionate as, 2538.  
—, benzyl tetrachloranilid as, 2545.  
—, benzyltrichloranilid as, 2545.  
—, benzylidene diacetate as, 2538.  
—, benzylidene glycerol as, 2543.  
—, betaine chloride as, 2546.  
—, betaine chromate as, 2546.  
—, betaine nitrate as, 2546.  
—, betaine permanganate as, 2546.  
—, biguanidine nitrate as, 2552.  
—, borneol as, 2549.  
—, borneol dibromdihydrocinamic  
acid as, 2548.  
—, borneol ethoxyacetate as, 2539.  
—, borneol ethoxychloracetate as,  
2539.  
—, borneol methoxyacetate as, 2539.  
—, borneol methoxychloracetate as,  
2539.  
—, *iso*-Borneol dibromdihydrocin-  
amic acid as, 2548.  
—, bornyl acetate as, 2549.  
—, bromethyl cinnamate as, 2537.  
—, *iso*-Butenyl acetate as, 2536.  
—, butyl acetate as, 2536.  
—, butyl carbamate as, 2536.  
—, butyl carbanilate as substitute,  
2537.  
—, butyl oleate as, 2536.  
—, butyl palmitate as, 2536.  
—, butyl stearate as, 2536.

- Camphor substitute, butyl tartrate as, 2536.  
 —, isobutylditrichloroacetyl tartrate as, 2536.  
 —, isobutyl oxalate as, 2540.  
 —, casein as, 2542.  
 —, centralite I as, 2552.  
 —, centralite II as, 2552.  
 —, chloracetanilid as, 2539.  
 —, chloral as, 2543.  
 —, *p*-chlorbenzenesulfanilid as, 2547.  
 —, *p*-chlorbenzenesulfo-*b*-naphthol as, 2547.  
 —, chlorethyl cinnamate as, 2537.  
 —, chlorhydrins as, 2543.  
 —, chlornaphthyl acetate as, 2539.  
 —, chloroxypropyl cinnamate as, 2537.  
 —, *p*-chlorsulfamid as, 2547.  
 —, cinnamene as, 2536.  
 —, cinnamyl compounds as, 2547.  
 —, colophony as, 2541.  
 —, copal as, 2541.  
 —, coumarone as, 2541.  
 —, cresol as, 2547.  
 —, cresyl anilid as, 2540.  
 —, cresyl anilid phosphate as, 2540.  
 —, cresyl carbonate as, 2540.  
 —, cresylphenyl ether as, 2543.  
 —, cresyl phosphate as, 2540.  
 —, cresyl thiophosphate as, 2540.  
 —, cresyl *p*-toluenesulfethylanilid as, 2546.  
 —, cresyl *p*-toluenesulfonate as, 2546.  
 —, *p*-cumarone as, 2541.  
 —, cyclic ethers as, 2543.  
 —, cyclohexanol as, 2548.  
 —, cyclohexanol acetate as, 2548.  
 —, cyclohexanol formate as, 2548.  
 —, cyclopentanol as, 2548.  
 —, cyclopentanol formate as, 2548.  
 —, *p*-cymene as, 2549.  
 —, dammar as, 2541.  
 —, dextrin diacetate as, 2549.  
 —, dextrin dibutyrate as, 2549.  
 —, dextrin distearate as, 2549.  
 —, dextrin ditartrate as, 2549.  
 —, dextrin pentacetate as, 2549.  
 —, dextrin tetratartrate as, 2549.  
 —, dextrin triacetate as, 2549.  
 —, diacetin as, 2537.  
 —, diacetochlorhydrin as, 2543.  
 —, diacetonearabitic ether as, 2543.  
 —, 3:4-diaminobenzoic acid as, 2544.  
 —, dialkyl oxalates as, 2540.  
 —, diamyl oxalate as, 2536.  
 —, diamyl phthalate as, 2538.  
 —, dibenzenesulfo-*p*-cresol as, 2547.  
 —, dibenzenesulfo-2,7-dioxynaphthalin as, 2547.  
 —, dibenzylbenzenesulfamide as, 2547.  
 —, dibenzyl-*p*-chlorbenzenesulfanilid as, 2547.  
 —, dibenzyl-*p*-toluenesulfamide as, 2547.  
 —, dibenzyl-*p*-toluenesulfanilid as, 2547.  
 —, dibenzyl-*p*-toluenesulfoimide as, 2547.  
 —, dibutyl oxalate as, 2536.  
 —, dicresylglyceryl ether as, 2537.  
 —, dicresyl phosphoric acid amyl ester as, 2541.  
 —, dicresyl phosphoric acid ethyl ester as, 2541.  
 —, dicresyl phosphoric acid methyl ester as, 2541.  
 —, dicyanodiamide as, 2552.  
 —, dicyanodiamidine as, 2552.  
 —, diethyl adipate as, 2536.  
 —, diethylbromacetyl-urea as, 2551.  
 —, diethyldiphenyl-urea as, 2552.  
 —, diethyl isophthalate as, 2538.  
 —, diethyl phthalate as, 2538.  
 —, diethylsulfondimethylmethane as, 2545.  
 —, diethylsulfonmethylethylmethane as, 2545.  
 —, diethylsulfone as, 2536.  
 —, diglycerol as, 2537.  
 —, dihydroxybenzene as, 2550.  
 —, dihydroxydiphenylsulfone as, 2548.  
 —, dimethyl adipate as, 2536.  
 —, dimethylamino-*b*-coumarin as, 2542.  
 —, dimethylaniline as, 2552.  
 —, dimethylcyclohexyl carboxylic acid as, 2548.  
 —, dimethylnaphthalene as, 2539.  
 —, dimethylphenyl carbamide as, 2544.  
 —, dinaphthyl carbonate as, 2539.  
 —, dinaphthyl ketone as, 2542.  
 —, dinaphthyl phosphoric acid amyl ester as, 2541.  
 —, dinaphthyl phosphoric acid methyl ester as, 2541.  
 —, dinaphthyl phosphoric acid ethyl ester as, 2541.  
 —, dinitrobenzene as, 2544.  
 —, *m*-dinitrobenzene as, 2544.  
 —, dinitrodiphenylamine as, 2553.  
 —, dinitrotoluene as, 2544.  
 —, dinitroxylene as, 2544.  
 —, *m*-dinitroxylene as, 2545.

- Camphor substitute, dioxydiphenyl-diethylmethane as, 2542.
- , dioxydiphenylethylmethylmethane as, 2542.
  - , dioxydiphenylmethane as, 2547.
  - , dioxydiphenyldimethylmethane as, 2542.
  - , dioxyditolyldimethylmethane as, 2542.
  - , dioxynaphthyl ketone as, 2542.
  - , diphenylamine as, 2553.
  - , diphenylbenzidine as, 2553.
  - , diphenyl carbonate as, 2539.
  - , diphenyl ether as, 2546.
  - , diphenylglyceryl ether as, 2537.
  - , diphenylphosphoric acid amyl ester as, 2541.
  - , diphenylphosphoric acid cresyl anilid as, 2540.
  - , diphenylphosphoric acid cresyl ester as, 2540.
  - , diphenylphosphoric acid ethyl anilid as, 2540.
  - , diphenylphosphoric acid ethyl ester as, 2540, 2541.
  - , diphenylphosphoric acid methyl anilid as, 2540.
  - , diphenylphosphoric acid methyl ester as, 2540, 2541.
  - , diphenylphosphoric acid naphthyl anilid as, 2540.
  - , diphenylphosphoric acid naphthyl ester as, 2540.
  - , diphenylphosphoric acid phenyl anilid as, 2540.
  - , diphenylphosphoric acid phenyl ester as, 2540.
  - , diphenyl phthalate as, 2538.
  - , *s*-diphenylthiocarbamide as, 2545.
  - , diphenyl urea as, 2546.
  - , di-*p*-sulfo-2,7-dioxyn phthalin as, 2547.
  - , edistin as, 2550.
  - , ethoxyacetylbornol as, 2539.
  - , ethoxyacetylmenthol as, 2539.
  - , ethoxyacetylsantalol as, 2539.
  - , ethylacetanilid as, 2552.
  - , ethylace'o *o*-nitrochloranilid as, 2547.
  - , ethyl acetylsalicylate as, 2537.
  - , ethyl adipate as, 2543.
  - , ethyl *m*-amidossulfobenzoate as, 2547.
  - , ethyl *o*-amidossulfobenzoate as, 2547.
  - , ethyl anilid as, 2540.
  - , ethyl anilid phosphate as, 2540.
  - , ethyl azacate as, 2543.
  - , ethyl butyrate as, 2536.
  - Camphor substitute, ethyl carbamate as, 2536.
  - , ethyl carbanilate as, 2537.
  - , ethyl carbonate as, 2536.
  - , ethyl cinnamate as, 2538.
  - , ethyl dicresyl phosphate as, 2541.
  - , ethyl dinaphthyl phosphate as, 2541.
  - , ethyl diphenyl phosphate as, 2541.
  - , ethylethenyltrichloramidine as, 2544.
  - , ethylethenyltrichloro-*o*-phenyl-enediamine as, 2547.
  - , ethylidene acetoacetate as, 2539.
  - , ethylidene glycolic glycerol as, 2543.
  - , ethyl lactate as, 2540.
  - , ethylnaphthyl ether as, 2543, 2546.
  - , ethyl-*m*-nitro-*p*-amidobenzoate as, 2544.
  - , ethyl oleate as, 2536.
  - , ethyl oxalate as, 2536.
  - , ethyl oxamate as, 2536.
  - , ethyl oxanilate as, 2540.
  - , ethyl palmitate as, 2536.
  - , ethyl pentachloranilid as, 2545.
  - , ethylphenyl urea as, 2546.
  - , ethyl phosphate as, 2540.
  - , ethyl phthalamate as, 2538.
  - , ethyl phthalanilate as, 2538.
  - , ethyl phthalate as, 2538, 2546.
  - , ethyl phthalonate as, 2538.
  - , ethyl pimelate as, 2543.
  - , ethyl propionate as, 2536.
  - , ethyl salicylate as, 2540.
  - , ethyl sebacate as, 2536, 2543.
  - , ethyl stearate as, 2536.
  - , ethyl suberate as, 2543.
  - , ethyl *p*-sulfoamidobenzoate as, 2547.
  - , ethyl tetrachloranilid as, 2545.
  - , ethyl *p*-toluenesulfamido acetate as, 2547.
  - , ethyl *p*-toluenesulfethylanilid as, 2546.
  - , ethyl *p*-toluenesulfonate as, 2546.
  - , ethyltrichloranilid as, 2545.
  - , ethyltrichlorisobutyl acetylsalicylate as, 2538.
  - , ethyltrichlorisopropyl acetylsalicylate as, 2538.
  - , eugenol as, 2537, 2543.
  - , isoeugenol as, 2543.
  - , eugenol benzyl ether as, 2543.
  - , isoeugenol benzyl ether as, 2543.
  - , exalgin as, 2545.
  - , formalerythritic ether as, 2543.
  - , formanilid as, 2545.

- Camphor substitute, formylamidophenyl amyl carbonate as, 2546.  
 —, formylamidophenyl ethyl carbonate as, 2546. •  
 —, formylamidophenyl isobutyl carbonate as, 2546.  
 —, formylamidophenyl methyl carbonate as, 2546.  
 —, formyldiphenylamine as, 2553.  
 —, gliadin as, 2550.  
 —, globulin as, 2550  
 —, glucose diacetate as, 2549.  
 —, glucose dibutyrate as, 2549. •  
 —, glucose distearate as, 2549.  
 —, glucose ditartrate as, 2549.  
 —, glucose pentacetate as, 2549  
 —, glucose tetratartrate as, 2549.  
 —, glucose triacetate as, 2549.  
 —, glycerol malate as, 2536.  
 —, glyceryl acetylsalicylate as, 2537.  
 —, glyceryl benzoate as, 2543  
 —, glyceryl phthalate as, 2538, 2543.  
 —, glyceryl succinate as, 2543  
 —, glyceryl *p*-toluenesulfethylanilid as, 2546.  
 —, glyceryl *p*-toluenesulfonate as, 2546.  
 —, glycol benzoate as, 2537.  
 —, glycol *o*-chlorbenzoate as, 2537  
 —, glycol hydrocinnamate as, 2537.  
 —, glycol hydrotropate as, 2537  
 —, glycol *p*-nitrobenzoate as, 2537.  
 —, glycol phenylacetate as, 2537.  
 —, glycol phenyldimethylacetate as, 2537.  
 —, glycol phenyldiethylcarbinacetate as, 2537.  
 —, glycol phenylethylacetate as, 2537.  
 —, glycol salicylate as, 2537  
 —, glycol *o*-toluate as, 2537.  
 —, guaiacolphenyl ether as, 2543.  
 —, guanidine as, 2552.  
 —, guanidine nitrate as, 2552.  
 —, hexahydro-*o*-cresol as, 2548.  
 —, hydroquinone as, 2550.  
 —, indene as, 2541.  
 —, *p*-indene as, 2541.  
 —, kauri as, 2541.  
 —, lactylamidophenyl amyl carbonate as, 2546.  
 —, lactylamidophenyl isobutyl carbonate as, 2546.  
 —, lactylamidophenyl ethyl carbonate as, 2546. •  
 —, lactylamidophenyl methyl carbonate as, 2546.  
 —, lead acetate, basic, as, 2549.  
 —, levulose diacetate as, 2549.  
 Camphor substitute, levulose dibutyrate as, 2549.  
 —, levulose distearate as, 2549.  
 —, levulose ditartrate as, 2549.  
 —, levulose pentacetate as, 2549.  
 —, levulose tetratartrate as, 2549  
 —, levulose triacetate as, 2549.  
 —, linalyl acetate as, 2549.  
 —, maisine as, 2550.  
 —, manol as, 2545  
 —, mastic as, 2541.  
 —, menthol ethoxyacetate as, 2539.  
 —, menthol ethoxychloracetate as, 2539  
 —, menthol methoxyacetate as, 2539  
 —, menthol methoxychloracetate as, 2539.  
 —, menthyl acetate as, 2538, 2549.  
 —, meta-dinitrobenzene as, 2544.  
 —, methoxyacetylborncol as, 2539.  
 —, methoxyacetylmenthol as, 2539  
 —, methoxyacetylsantalol as, 2539.  
 —, methylacetanilid as, 2545, 2552  
 —, methyl acetylsalicylate as, 2537.  
 —, methyl adipate as, 2543  
 —, *b*-methyl adipate as, 2536.  
 —, methyl anilid as, 2540.  
 —, methylanilid phosphate as, 2540  
 —, methylaniline as, 2539  
 —, methyl azelaate as, 2543  
 —, methyl benzyl ether as, 2543  
 —, methyl carbamate as, 2536  
 —, methyl carbanilate as, 2537.  
 —, methyl carbonate as, 2536  
 —, methyleyclohexanol as, 2548  
 —, *b*-methyleyclohexanol acetate as, 2548.  
 —, *b*-methyleyclohexanol formate as, 2548  
 —, 1-methyleyclohexanone as, 2548.  
 —, methyleyclohexyl carboxylic acid as, 2548  
 —, methyl-3,4-diamidobenzoic acid as, 2544  
 —, methyl diacresyl phosphate as, 2541.  
 —, methyl dinaphthyl phosphate as, 2541.  
 —, methyl diphenyl phosphate as, 2541  
 —, methyldiphenyl urea as, 2546.  
 —, methylethynyltrichloramidine as, 2544, 2547.  
 —, methylketobutanol as, 2542.  
 —, methylnaphthylamine as, 2539.  
 —, methylnaphthyl ether as, 2543.  
 —, methylnaphthyl ketone as, 2542.  
 —, methyl oleate as, 2536.  
 —, methyl oxalate as, 2536.  
 —, methyl oxamate as, 2536.

- Camphor substitute, methyl oxanilate as, 2540.
- , methylloxynaphthyl ketone as, 2542.
  - , methyl palmitate as, 2536.
  - , methyl pentachloranilid as, 2545.
  - , methylphenyl urea as, 2546.
  - , methylphenyl urethane as, 2546.
  - , methyl phosphate as, 2540.
  - , methyl pimelate as, 2543.
  - , methyl sebacate as, 2536, 2543.
  - , methyl stearate as, 2536.
  - , methyl suberate as, 2543.
  - , methyl tetrachloranilid as, 2545.
  - , methyltrichloranilid as, 2545.
  - , methylenethylepic glycerol as, 2543.
  - , methylene-glycerol as, 2543.
  - , methylurea nitrate as, 2552.
  - , monacetochlorhydrin as, 2543.
  - , monoacetin as, 2537.
  - , monochlorbenzylidene diacetate as, 2539.
  - , monochloronaphthalene as, 2536.
  - , mononitromonochlorhydrin as, 2543.
  - , naphthalene as, 2539.
  - , naphthalene benzylnitrochloride as, 2540.
  - , naphthalene bromide as, 2540.
  - , naphthalene chloride as, 2540.
  - , naphthalene nitrobromide as, 2540.
  - , naphthalene nitrochloride as, 2540.
  - , naphthalene trichloride as, 2539.
  - , naphthol as, 2539, 2547.
  - , *b*-naphtholamyl ether as, 2537.
  - , naphthyl acetate as, 2538.
  - , naphthyl anilid as, 2540.
  - , naphthyl anilid phosphate as, 2540.
  - , naphthyl benzoate as, 2538.
  - , naphthyl carbonate as, 2540.
  - , naphthyl ether as, 2544.
  - , *b*-naphthyl ether as, 2541.
  - , naphthyl-dihydrocarvone as, 2549.
  - , naphthylphenyl ether as, 2543.
  - , naphthyl phosphate as, 2540.
  - , naphthyl propionate as, 2538.
  - , naphthyl thiophosphate as, 2540.
  - , 3-nitro-4-acetamidobenzoic acid as, 2544.
  - , *p*-nitroacetacetanilid as, 2545.
  - , nitroacetylcellulose as, 2541.
  - , nitrobenzene as, 2544.
  - , nitrobenzoyl nitrate as, 2541.
  - , nitrobutylcellulose as, 2541.
- Champhor substitute, nitrocymene as 2544.
- , nitroglycerol as, 2536.
  - , nitroisobutylglycerol trinitrate as, 2536.
  - , nitrolyl groups as, 2547.
  - , nitronaphthalene as, 2539, 2544.
  - , nitronaphthalene trichloride as, 2539.
  - , nitronaphthyl acetate as, 2539.
  - , nitrophenyl compounds as, 2547.
  - , nitrofluene as, 2544.
  - , *p*-nitrotoluene as, 2544.
  - , oxyalkyl compounds as, 2547.
  - , oxyaliphyl compounds as, 2547.
  - , paraldehyde as, 2543.
  - , pentacetyllevulose heptaacetate as, 2549.
  - , pentacetyllevulose mono-acetate as, 2549.
  - , pentacetyllevulose octoacetate as, 2549.
  - , pentacetyllevulose tetra-acetate as, 2549.
  - , phenetol as, 2543.
  - , phenol as, 2547.
  - , phenanthrene as, 2540.
  - , phenanthrylmethyl ether as, 2546.
  - , phenylacetamide as, 2545.
  - , phenylaceto-2-naphthalide as, 2552.
  - , phenyl acetylsalicylate as, 2537.
  - , phenyl anilid as, 2540.
  - , phenyl anilid phosphate as, 2540.
  - , phenyl benzoate as, 2538.
  - , phenylbenzyl ether as, 2546.
  - , phenyl-carbamide as, 2544.
  - , phenyl carbonate as, 2540, 2541.
  - , phenyl citrate as, 2541.
  - , phenyl formate as, 2541.
  - , phenyl glycidate as, 2537.
  - , phenyl malate as, 2541.
  - , phenylmethyl carbamide as, 2544.
  - , phenyl phosphate as, 2540.
  - , phenylphosphoric dicresyl anilid as, 2540.
  - , phenylphosphoric dicresyl ester as, 2540.
  - , phenylphosphoric diethyl anilid as, 2540.
  - , phenylphosphoric diethyl ester as, 2540.
  - , phenylphosphoric dimethyl anilid as, 2540.
  - , phenylphosphoric dimethyl ester as, 2540.
  - , phenylphosphoric dinaphthyl anilid, as 2540.

- Camphor substitute, phenylphosphoric dinaphthyl ester as, 2540.
- , phenylphosphoric diphenyl anilid as, 2540.
- , phenylphosphoric diphenyl ester as, 2540.
- , phenyl propionate as, 2541.
- , phenyl salicylate as, 2538.
- , phenyl tartrate as, 2541.
- , phenyl thiophosphate as, 2540.
- , phenyl *p*-toluenesulfethylanilid as, 2546.
- , phenyl *p*-toluenesulfonate as, 2546.
- , phenyl urea as, 2546.
- , phenyl urethane as, 2546.
- , plastol, as 2547.
- , polychloramides as, 2544.
- , prolamin as, 2550.
- , propyl acetylsalicylate as, 2537.
- , *iso*-propyl-*p*-amino benzoate as, 2537.
- , propyl carbamate as, 2536.
- , propyl carbanilate as, 2537.
- , propyl carbonate as, 2536.
- , *iso*-propyl-*p*-nitro benzoate as, 2537.
- , propyl oleate as, 2536.
- , propyl oxalate as, 2536.
- , propyl oxamate as, 2536.
- , propyl palmitate as, 2536.
- , propyl stearate as, 2536.
- , proteids as, 2550.
- , pulegone as, 2543.
- , pyrocatechol as, 2550.
- , pyrocatechol diethyl ether as, 2543.
- , pyrocatechuic aldehyde as, 2548.
- , pyrogallol as, 2550.
- , quinone as, 2543.
- , resorcinol as, 2547, 2550.
- , resorcinol diacetate as, 2539.
- , rosin soaps as, 2541.
- , saccharose hepta-acetate as, 2549.
- , saccharose mono-acetate as, 2549.
- , saccharose octo-acetate as, 2549.
- , saccharose tetra-acetate as, 2549.
- , salipyrin as, 2545.
- , salol as, 2538.
- , santalol ethoxyacetate as, 2539.
- , santalol ethoxychloracetate as, 2539.
- , santalol methoxyacetate as, 2539.
- , santalol methoxychloracetate as, 2539.
- , shellac as, 2541.
- , sodium trichlorethylamidine as, 2547.
- , soya bean as, 2551.
- , starch as, 2542.
- Camphor substitute, styroleneas, 2536.
- , sulfamidooethyl ester as, 2547.
- , sulfobenzid as, 2545.
- , sulfocarbanilid as, 2545.
- , sulfonal as, 2545.
- , terpine as, 2549.
- , terpinene as, 2552.
- , terpineol as, 2548, 2549.
- , terpinyl acetate as, 2539.
- , terpinyl diacetate as, 2539.
- , terpinyl propionate as, 2539.
- , tertiary alcohol as, 2552.
- , tetracetylactose hepta-acetate as, 2549.
- , tetracetylactose mono-acetate as, 2549.
- , tetracetylactose octo-acetate as, 2549.
- , tetracetylactose tetra-acetate as, 2549.
- , tetraethylglycol as, 2537.
- , tetrahydromethylpropylbenzene as, 2548.
- , tetramethylnaphthalene as, 2540.
- , tetraphenylurea as, 2552.
- , thujone as, 2543.
- , thymochinon as, 2549.
- , thymol as, 2549.
- , toluene benzylnitrochloride as, 2540.
- , toluene bromide as, 2540.
- , toluene chloride as, 2540.
- , toluene nitrobromide as, 2540.
- , toluene nitrochloride as, 2540.
- , *p*-toluenesulfamide as, 2547.
- , *p*-toluenesulfamido acetic acid as, 2547.
- , *p*-toluenesulfamido ethyl ester as, 2547.
- , *p*-toluenesulfoacidphenylether as, 2547.
- , *p*-toluenesulfoanilid as, 2547.
- , *p*-toluenesulfo-*p*-chloranilid as, 2547.
- , *p*-toluenesulfocresol as, 2547.
- , *p*-toluenesulfocyclohexylamine as, 2545.
- , *p*-toluenesulfodicyclohexylamine, 2548.
- , *p*-toluenesulfodiethylamid as, 2547.
- , *p*-toluenesulfodiphenylamin as, 2547.
- , *p*-toluenesulfoethylamide as, 2547.
- , *p*-toluenesulfoethylanilid as, 2547.
- , *p*-toluenesulfomethylamine as, 2547.
- , *p*-toluenesulfomonoethylamide as, 2547.



Camphor substitute, *p*-toluenesulfo-*a*-naphthol as, 2547.

—, *p*-toluenesulfo-*b*-naphthol as, 2547.

—, *p*-toluenesulfo-*b*-naphthylamine as, 2547.

—, *p*-toluenesulfo-*a*-naphthylamin as, 2547.

—, *p*-toluenesulfo-*a*-phenetidin as, 2547.

—, *p*-toluenesulfo-*p*-phenetidin as, 2547.

—, *p*-toluenesulfophenylhydrazin as, 2547.

—, *p*-toluenesulfo-*m*-xylylid as, 2547.

—, *o*-toluylenemethenylamidine as, 2544.

—, tolyldimethylpyrazolon as, 2545.

—, tolypyrine as, 2545.

—, tolypyrin salicylate as, 2545.

—, tolysal as, 2545.

—, triacetin as, 2537.

—, trichlorethylamidine as, 2547.

—, tri-dimethylcyclohexyl carboxylic acid as, 2548.

—, triethyl citrate as, 2537.

—, trihydroxybenzene as, 2550.

—, trimethylnaphthalene as, 2539.

—, trinitroanisol as, 2544.

—, trinitrophenetol as, 2544.

—, trional as, 2545.

—, triphenyl phosphate as, 2540.

—, urea as, 2551.

—, urea acetate as, 2551.

—, urea benzoate as, 2551.

—, urea butyrate as, 2551.

—, urea formate as, 2551.

—, urea naphthoate as, 2551.

—, urea nitrate as, 2551, 2552.

—, urea oxalate as, 2552.

—, urea propionate as, 2551.

—, urea salicylate as, 2551.

—, urea sulfate as, 2551.

—, urea valerate as, 2551.

—, urethanes as, 2546, 2552.

—, urethanes, substituted as, 2544.

—, veratrol as, 2543.

—, vetivenol acetate as, 2537.

—, vinyl acetate as, 2549.

—, vinyl chloracetate as, 2549.

—, xylamide as, 2548.

—, xylene bromide as, 2540.

—, xylene chloride as, 2540.

—, xylene bezpylnitrochloride as, 2540.

—, xylene nitrobromide as, 2540.

—, xylene nitrochloride as, 2540.

—, xylyl compounds as, 2541.

—, zein as, 2550.

Camphor substitutes, see also Camphor,

substitutes for.

Canada balsam, 1887.

—, celluloid lacquer containing, 2578.

Candelilla wax, paint remover containing, 2565.

Candle, Chamberland, 1772.

Candles, lighting, cellulose nitrate for facilitating 1888, 1889.

Candle-wicks, cotton for, 480.

Canes, celluloid, 2712.

Cane sugar, 74.

—, nitrating, 1845.

Cane Sugar, see also Saccharose, Sucrose.

Cannabis indica, see Indian hemp.

Canonite, 2970.

—, No. 1, 2970.

—, No. 2, 2970.

—, No. 3, 2970.

Cantharides, cellulose nitrates with, 2793.

Cantharidin, cellulose nitrates with, 2793.

Canvas, photographing on, 2848.

—, waterproofing, cellulose nitrate for, 1893.

Caoutchouc, artificial, cellulose nitrate for, 2599.

—, artificial, syntheses of, 2469.

—, electrical charging of with cellulose nitrate, 1768.

Cap, composition, nitroerythrite for, 1859.

Capping bottles, see Bottles, capping.

Capric acid, manufacture of ketones from, 2397.

Caprylic acid, see Caprylic acid.

Caprimic acid, see Capric acid.

*n*-Caproic, methylpropyl ketone from, 2397.

Caproic ether, see Ethyl caproate.

Caprone, 2387.

Capronic acid, see Caproic acid, from butyric acid.

Capronic ether, see Ethyl caproate.

Capronitrile, see Amyl cyanide.

Capronitrile, see Isoamyl-cyanide.

Capryl alcohol, alcohol recovery by, 2558.

—, ether recovery by, 2558.

Caprylic acid, methylamyl ketone from, 2397.

Caprylic ether, see Ethyl caproate.

Caps, blasting, transporting, 1929.

Capsicum, cellulose nitrate, and, 2793.

Capsules, celluloid, 2688.

Caramel, dry plate preservative, 2830.

- Caramel, preserving collodion emulsions by, 2847.  
*Caraway oil*, see *Oil of caraway*.  
 Carbamide, 1907.  
*Carbamide*, see also *Urea*.  
*Carbanilide*, see *Diphenylurea*.  
 Carbazol, reaction with lignocellulose, 262.  
*Carbazotic acid*, see *Picric acid*.  
*Carbinol*, see *Methyl alcohol*.  
*d*-Carbinol bonds, 407.  
*m*-Carbinol bonds, 407.  
 Carbite, 2966.  
*Carbocinchmeronic acid*, see *Pyridinecarboxylic acid*.  
 Carbo-gelatin, 2969.  
 Carbohydrate carboxylates, 2381, 2987.  
 Carbohydrate nitrates, 1843.  
 Carbohydrate phosphates, 3018.  
 Carbohydrate xanthates, 2083.  
 Carbohydrates, 4.  
   —, acetic acid from, 41.  
   —, acetylated, 2987.  
   —, acetylation of, 192.  
   —, classification of, 5.  
   —, composition, 4.  
   —, condensing phenols with, 236.  
   —, decomposition of, 4.  
   —, determination of, 8.  
   —, distillation of, 41.  
   —, formation of, 399.  
   —, hydrolysis of, 8.  
   —, nitrated, action fungi on, 1802.  
   —, —, action mould on, 1802.  
   —, nitrates of, 1843.  
   —, nitration, 1640.  
   —, optical activity of, 7.  
   —, phenylhydrazine compounds of, 8.  
   —, properties, 8.  
   —, puffed, nitrating, 1849.  
   —, rotation of, 8.  
   —, solubility of, 8.  
   —, stability towards heat, 41.  
*Carbolic acid*, see *Phenol*.  
 (penta) Carbomethoxy glucose, 187.  
 Carbon, acetone for removing, 2400.  
   —, decolorizing, producing, 664.  
   —, electric light, manufacture of, 101.  
 Carbon bisulfide, 2661.  
   —, cellulose nitrate solvent of alcohol, naphtha and, 2383.  
   —, dissolving sulfur by, 1037.  
   —, extraction sulfur by, 1031.  
   —, paint remover containing, 2564.  
   —, sulfur dioxide from, 1037.  
*Carbon disulfide*, see *Carbon bisulfide*.  
*Carbon dichloride*, see *Carbon tetrachloride*.  
*Carbon dioxide*, drying cotton in, 638.  
   —, specific heat of, 1800.  
*Carbon filaments*, see *Filaments, carbon*.  
*Carbon hexachloride*, see *Carbon trichloride*.  
 Carbon monoxide, catalyst inhibitor, 905.  
   —, reducing sulfuric acid by, 1312.  
 Carbon printing, 2863.  
 Carbon prints, collodion, 2863.  
 Carbon remover, acetone as, 2400.  
 Carbon silicide, 957.  
 Carbon stone, 1413.  
 Carbon tetrabromide, 163.  
 Carbon tetrachloride, 570, 608, 1780, 1783, 2577, 2661, 3046.  
   —, cellulose acetate precipitant, 3042.  
   —, cellulose nitrate solvent camphor and, 1626, 2384.  
   —, dissolving NO<sub>2</sub> in, 720.  
   —, dissolving sulfur by, 1037.  
   —, extracting impurities in cellulose nitrate by, 2081.  
   —, extracting resin from wood by, 289.  
   —, purifying cotton by, 562.  
   —, purifying lignin by, 321.  
   —, recovery solvents by, 2557.  
   —, removing arsenic by, 1342.  
*Carbon trichloride*, see *Hexachlorethane*.  
*α-Carbonaphthoic acid*, see *α-Oxy-naphthoic acid*.  
*Carbonic ether*, see *Ethyl carbonate*.  
 Carbonite, stability, determining, 2333.  
*Carbonitride*, see *Cyanamide*.  
 Carborundum, 942.  
*Carbostyryl*, see *Hydroxy-quinoline (2)*.  
 Carboys, 1312.  
   —, emptying, aspirator for, 959.  
 Carcel lamp, 2494.  
 Cardboard, nitrating, 1815, 1888.  
   —, —, superficially, 1766.  
   —, waterproofing of, celluloid for, 2690.  
 Card games, celluloid in, 2729.  
 Cards, celluloid, 2701.  
   —, celluloid for, 2862.  
   —, playing, celluloid, 2729.  
 Carmine, coloring celluloid by, 1896.  
 Carnauba palm, 535.  
 Carnauba wax, 535, 2963.  
   —, paint remover containing, 2565.  
 Caro's acid, 1293.  
 Carrageen moss, 2765.

- Carrageen moss, reducing inflammability celluloid by, 2753.*  
*Carthagen cotton, constants of, 506.*  
*Carthamic acid, see Carthamin.*  
*Cartridges, blasting, cellulose nitrate containing, 1629*  
*Cartridges, blasting, see also Blasting cartridge.*  
 --, cases for, cellulose nitrate for waterproofing, 1889.  
 --, cellulose nitrate for, 1590.  
 --, cellulose nitrate in, 1598.  
 --, cellulose nitrate, manufacture of, dangers in, 1926, 1927.  
 --, coating, cellulose nitrate for, 2981.  
 --, collodion, 1591.  
 --, manufacture of, cellulose nitrate in, 2980.  
 --, mining, cellulose nitrate containing, 1629.  
 --, nitrated cloth for, 1887.  
 --, paper, celluloid for, 2697.  
 --, --, pygamoid as coating for, 2616.  
 --, waterproofing, celluloid for, 2697.  
 --, --, cellulose nitrate for, 1618, 2573.  
 --, --, collodion for, 1623.  
*Cartridge cases, cellulose nitrate for waterproofing, 1889.*  
 --, waterproofing, celluloid lacquers for, 2579.  
*Carvestrene, 2519.*  
*Caryophyllic acid, see Eugenol*  
*Casein, artificial pearl with cellulose nitrate and, 2589.*  
 --, celluloid substitute, 2759.  
 --, cellulose ester solvent, 2542  
 --, cellulose nitrate membranes treated with, 1775.  
 --, cuprammonium and, 70.  
 --, filaments of, 2646.  
 --, imitation coral of, 2720.  
 --, paint remover containing, 2568.  
 --, plastic, oxycellulose and, 177.  
 --, reducing inflammability celluloid by, 2753, 2754.  
 --, softening mercerized cotton by, 106.  
 --, synthetic amber of formaldehyde and, 2721.  
 --, viscose and, 3082.  
*Casinates, see also Casein.*  
*Casks, waterproofing, cellulose nitrate for, 2612.*  
*Cassia, starch from, 446.*  
*Cassia, see Oil of cassia.*  
*Cassius, coloring celluloid by, 1890.*  
*Cast iron, see Iron, cast.*  
*Castor oil, 2973, 2974.*  
*Castor Oil, acetated, cellulose acetate solvent, 3030.*  
 --, amyl acetate substitute, 2583.  
 --, celluloid lacquer containing, 2578.  
 --, cellulose nitrate lacquer with, 2593.  
 --, clearing celloidin by, 2782.  
 --, increasing suppleness of cellulose nitrate by, 1591.  
 --, overcoming contractility of cellulose nitrate by, 2790.  
 --, sulfonated, paint remover containing, 2565.  
*Casts, plaster, cellulose nitrate lacquers for, 2583.*  
*Catalase, 421.*  
*Catalysis theory, of, 1102.*  
*Catalyst, 915.*  
 --, activity of, 906.  
 --, alkylamine sulfuric salts as, 3010.  
 --, aluminium, 905.  
 --, aluminium oxide, 1111.  
 --, aluminium plumbite, 897.  
 --, aluminium sulfate, 1163.  
 --, ammonium bisulfate as, 3009.  
 --, ammonium nitrate as, 3009.  
 --, aniline bisulfate as, 3010.  
 --, aniline sulfate as, 3010.  
 --, antimony oxide, 1120.  
 --, arsenic pentoxide, 1102, 1122.  
 --, asbestos, platinized, 1113, 1190.  
 --, barium oxide, 917.  
 --, benzene sulfonic acid as, 3009, 3011.  
 --, beryllium, 905.  
 --, beryllium oxide, 1111, 1122.  
 --, bichromates, 895.  
 --, bismuth, 910, 916.  
 --, bismuth oxide, 698, 896, 1120.  
 --, borates as, 1400.  
 --, cadmium oxide, 1120.  
 --, cadmium plumbite, 897.  
 --, calcium sulfate, 1122.  
 --, calcium sulfide, 1028.  
 --, cerium, 917.  
 --, cerium nitrate, 938.  
 --, cerium nitride, 917.  
 --, cerium oxide, 1111, 1122, 1158.  
 --, chlorosulfonic acid as, 3016.  
 --, chromates, 895.  
 --, chromium, 895, 905, 916, 1119.  
 --, chromium oxides, 703, 895, 912, 917, 1103, 1158, 1401.  
 --, chromium stannate, 1120.  
 --, cobalt, 912.  
 --, cobalt oxide, 917, 1111, 1158.  
 --, cobalt salts, 429.  
 --, contact poisons of, 938.  
 --, copper, 912.

- Catalyst, copper oxide, 912, 916, 1103, 1158.
- , copper salts, 429, 3010.
- , didymium oxide, 1111, 1158.
- , dimethyl sulfate as, 3009.
- , ethyl sulfuric acid as 3009, 3016
- , ferro-aluminium, 917.
- , ferro-silicon, 917, 1122
- , ferrotitanium, 1111
- , fluorine in removal of, 1167.
- , glass, 1102.
- , Hannover's porous metals, 918.
- , hydriodic acid, 905.
- , ilmenite, 1120.
- , inhibitor, 905.
- , —, antimony, 905.
- , —, arsenic, 905.
- , —, bismuth, 905.
- , —, boron, 905.
- , —, carbon monoxide, 905.
- , —, lead, 905.
- , —, phosphorus, 905
- , —, sulfur, 905.
- , —, tellurium, 905.
- , —, zinc, 905.
- , iridium, 912, 1158.
- , iron, 903, 912.
- , Iron(ic) arsenate, 1102
- , iron nitride, 908.
- , iron oxides, 912, 1028, 1029, 1102, 1116, 1136, 1158.
- , iron salts, 429.
- , iron sulfate as, 3010
- , lanthanum oxides, 1122, 1158.
- , lead, 912.
- , lead chamber crystals as, 3008
- , lead chromate, 918, 942, 1120.
- , lead oxide, 912, 942.
- , lithium chloride, 917.
- , lithium-manganese, 909.
- , lithium sulfide, 917.
- , magnesium, 905.
- , magnesium plumbite, 897.
- , magnesium sulfate, 1163, 1172
- , —, platinizing, 1184.
- , —, preparation 1183.
- , manganates, 895.
- , manganese, 905, 912, 916.
- , manganese nitride, 908.
- , manganese oxide, 917, 1111, 1158, 1296.
- , manganese salts, 429.
- , manufacturer of, 1162.
- , methylamine bisulfate as, 3010
- , methylaminesulfate, as, 3010.
- , methylene sulfate as, 3012.
- , molybdenum, 903, 905, 906, 918.
- , molybdenum nitride, 903.
- , molybdic acid, 903, 1158.
- Catalyst, monochloroacetic acid as, 3011.
- , nickel, 912, 916, 917, 1122.
- , nickel-chromium-copper, 689.
- , nickel oxide, 912, 917, 1111, 1158.
- , nickel salts, 429.
- , nitric acid as, 3009.
- , nitrosulfuric acid as, 3010
- , osmates, 1151.
- , osmium, 902, 918.
- , osmium oxide hydrate, 938.
- , ozone, 1122
- , palladium, 912, 1158.
- , palladium asbestos, 908.
- , permanganates, 895.
- , phenol sulfonic acid as, 300
- , —, 3016.
- , phosphoric acid, 1122.
- , phosphorus chloride as, 3011.
- , platinized asbestos, 916.
- , platinized magnesium sulfate, 1115.
- , platinizing, 1184.
- , —, Mannheim process, 1188.
- , platinum, 916, 1113.
- , plumbites, 895, 897.
- , poisoned, re-activating, 1103.
- , porcelain, 1102.
- , potassium chlorplatinate, 1151.
- , potassium osmate, 938, 1151.
- , potassium ruthenate, 1151.
- , potassium sulfate, 1163.
- , preparation of, 1183.
- , properties of, 1103.
- , pumice, platinized, 1190
- , purifying, 1163.
- , pyridine, 1886.
- , pyridine sulfate as, 3010.
- , pyrites, 917.
- , pyrophoric mixture, 918.
- , pyrosulfuryl chloride as, 301
- , radioactive, 1121.
- , radioactive material, 1111.
- , regeneration of, 1162.
- , removing contact poison from, 906.
- , revivifying, 1116.
- , rhodium, 912.
- , ruthenates, 1151.
- , ruthenium, 916.
- , selenium, 1401.
- , selenium compounds, 1122.
- , silicon, 689.
- , silver, 912.
- , silver manganese chromate, 940.
- , silver molybdate, 940.
- , silver oxide, 912, 1158.
- , silver phosphate, 940.
- , silver vanadate, 940, 1121.

- Catalyst, sodium ethylsulfate as, 3010.  
 —, sodium manganate, 895.  
 —, strontium carbide, 917.  
 —, sulfacetic acid as, 3011.  
 —, sulfinic acid as, 3009.  
 —, sulfonic acid as, 3009.  
 —, sulforicinoleic acid as, 3008.  
 —, sulfur, 689.  
 —, sulfurchloride as, 3011.  
 —, sulfuric acid as, 3008, 3015.  
 —, sulfur trioxide as, 3009.  
 —, sulfuryl chloride as, 3010.  
 —, tantalum, 689, 905, 1122.  
 —, tellurium, 698, 896.  
 —, tellurium compounds, 698.  
 —, thoria, 896.  
 —, thorium, 917.  
 —, thorium oxides, 1122, 1158, 1296.  
 —, tin chromate, 1120.  
 —, titanium, 916, 918, 940, 1120.  
 —, titanium chloride, 917.  
 —, titanium oxides, 702, 1111.  
 —, titanium sulfide, 917.  
 —, toluidine sulfate as, 3010.  
 —, trichloroacetic acid as, 3011.  
 —, trioxymethylene as, 3012.  
 —, tungsten, 905, 906, 917.  
 —, tungsten chloride, 1151.  
 —, tungsten oxides, 1296.  
 —, tungstic acid, 1158.  
 —, ultraviolet light, 1111, 1296.  
 —, uranium, 897, 903, 918.  
 —, uranium carbide, 903, 908.  
 —, uranium nitride, 904.  
 —, uranium oxides, 702, 1111, 1158.  
 —, vanadic acid, 1158.  
 —, vanadium, 905.  
 —, vanadium compounds, 1120.  
 —, vanadium oxide, 1111.  
 —, vanadium pentoxide, 1103, 1120, 1150.  
 —, yttrium oxides, 1122.  
 —, zinc chloride as, 3015.  
 —, zinc plumbite, 897.  
 —, zircon, 940.  
 —, zirconium, 905.  
 —, zirconium oxide, 1111, 1122, 1158.  
 Catalyst, *see also* Contact mass.  
 Catalysts, 192, 1111.  
 —, activation, 916.  
 Catalysts, *see also* individual chemicals.  
 Catalysts, *see also* Promoters.  
 Catalytic agents, *see* Catalysts.  
 Catalysts, *see* Catalyst.  
 Catamenial shields, celluloid, 2742.  
 Catechin, *see* Catechol.  
 Catechinic acid, *see* Catechol.  
 Catechol, 353.  
 Catechol, reaction lignocellulose with, 263.  
 Catechol dimethyl ether, *see* Pyrocatechin dimethyl ether.  
 Catechol monomethyl ether, *see* Guaiacol.  
 Catechol, *see also* Pyrocatechin.  
 Catechu, dry plate preservative, 2828, 2834.  
 Catechuic acid, *see* Catechol.  
 Catechutannic acid, absorption cotton by, 63.  
 Cathartomannit pentanitrate, 1848.  
 Catheter, celluloid, 2742.  
 Caustic polish, *see* Potassium hydroxide.  
 Caustic soda, *see* Sodium hydroxide.  
 Ceara cotton, constants of, 505.  
 Cedar oil, celluloid lacquer containing, 2578.  
 Celakut, 1693, 2795.  
 Celery oil, *see* Oil of celery.  
 Celite, 2970.  
 Cellarious vessels, 1458.  
 Cellase, 190.  
 Cellestron, 3058.  
 Cellit, 3044.  
 Cellit L., *see* Cellit.  
 Cellobiose, 193, 194.  
 Cellobiose, 26, 176, 181, 187, 189, 193, 327.  
 Cellobiose, acetosulfates of, 187.  
 Cellobiose acetate, 176, 662.  
 Cellobiose acetates, properties of, 188.  
 Cellobiose octacetate, 182, 187, 190, 191.  
 —, acetic acid in, 188.  
 —, melting point of, 188.  
 Cellobiose octacetate, *see also* Octoacetyl cellobiose.  
 Cellobiose osazones, 326.  
 Celloidin, 1626, 1649, 1693, 1890, 2361, 2779, 2840.  
 —, clearing, anethol for, 2782.  
 —, —, aniline for, 2782.  
 —, —, castor oil for, 2782.  
 —, —, oil bergamot for, 2782.  
 —, —, oil of cajeput for, 2782.  
 —, —, oil cedarwood for, 2782.  
 —, —, oil clove for, 2782.  
 —, —, oil origanum for, 2782.  
 —, —, oil white thyme for, 2782.  
 —, —, phenol for, 2782.  
 —, decalcification of, 2784.  
 —, hardening, 2782.  
 —, injection mass of, 2784.  
 Celloidin, *see also* Cellulose nitrate.  
 Cellon, 3044.  
 Cellon acid nitrate, 1664.

- Cellonite, 1694, 2667, 3044.
- Cellophane, 3075.
- , diapositives on, 3075.
- Cellose, 7, 186, 193.
- Cellose- $\beta$ -octacetate, 183.
- Celloxin, 11, 171, 172.
- "Celloyarn," 326, 337, 2655.
- Cells, electric, celluloid, 2699.
- , formation of, 3.
- Cellulette, 3045.
- Cellulide, 2669.
- Celluline, 2669.
- Cellulite, 338.
- Cellulith, 338, 3076.
- Cellulodine, 2669.
- Cellulograph, 2865.
- Celluloid, 1694, 2381, 2655.
- , accumulators of, 2658, 2699.
- , adhesives, of 2691.
- , agglutinating bristles by, 2713.
- , ammonium caseinate for reducing inflammability of, 2754.
- , analysis, 2758.
- , antiseptic pencil of, 2742.
- , applications in electricity, 2699.
- , artificial ears of, 2744.
- , artificial eyes of, 2743.
- , artificial flowers of, 2712.
- , artificial horn of, 2719.
- , artificial limbs of, 2741.
- , artificial pearls of, 2720.
- , artificial whalebone of, 2710.
- , attrition sheets of, 2697.
- , aviator's helmet of, 2702.
- , baby comforters, 2729.
- , baby soothers of, 2729.
- , balloons of, 2729.
- , balloon sheets of, 2683.
- , balls, ping pong of, 2722.
- , bandages of, 2742.
- , bangles of, 2712.
- , barette of, 2714.
- , bas reliefs of, 2917.
- , beads, 2711.
- , belt of, 2711.
- , belt fastener of, 2711.
- , bicycle pedals of, 2729.
- , billiard balls of, 2723.
- , billiard chalk holder of, 2724.
- , bodice fastening of, 2711.
- , boot uppers of, 2709.
- , bracelet of, 2712.
- , bracelet fastener, of 2712.
- , brakes of, 2698.
- , bristles of, 2713.
- , brushes of, 2713.
- , brush, case of, 2714.
- , buckles of, 2711.
- , buttons of, 2705.
- Celluloid, buttonholes of, 2705.
- , butterflies, 2712.
- , camphorless, 2666.
- , canes of, 2712.
- , capsules of, 2688.
- , cards of, 2701, 2729, 2862.
- , carrageen moss for reducing inflammability of, 2752.
- , cartridges waterproofed by, 2697.
- , casein for reducing inflammability of, 2753, 2754.
- , casting, 2677.
- , catamenial shields of, 2742.
- , catheter of, 2742.
- , cellulose nitrate for manufacture of, 2019.
- , cement of, 2577, 2691, 2916.
- , chalcedony imitating by, 2722.
- , champleve enamel imitating, 2722.
- , cheek plumper of, 2703.
- , chess of, 2728.
- , cigar holders of, 2696.
- , cinematoscopic pictures of, 2715.
- , classification of, 1692.
- , cleaning, 2680.
- , cliches of, 2746.
- , clock case of, 2712.
- , coated hooks of, 2711.
- , coiffure ornaments of, 2714.
- , collars of, 2706.
- , collar support of, 2703.
- , collar tab of, 2711.
- , colophony for reducing inflammability of, 2752.
- , coloring, 1895.
- , color screen, of 2877.
- , comb of, 2715.
- , comb, massage, 2718.
- , constants of, 2756.
- , copal for reducing inflammability of, 2752.
- , copper caseinate for reducing inflammability of, 2754.
- , coral imitated by, 2720.
- , corset fastener of, 2711.
- , covered cranks of, 2698.
- , cricket balls of, 2728.
- , crutch top of, 2741.
- , cuffs of, 2706.
- , cumarone for reducing inflammability of, 2752.
- , cupping apparatus of, 2741.
- , cutting, 2679.
- , cycle handle grips, 2698.
- , dammar for reducing inflammability of, 2752.
- , denigition of, 2657.
- , dental uses of, 2738.
- , difficultly inflammable, 1793.

- Celluloid, diffraction gratings of, 2912.  
 —, discus of, 2728.  
 —, discharge collecting vessel of, 2741.  
 —, dish of, 2717, 2908, 2916.  
 —, dish covers of, 2917.  
 —, display advertising with, 2701.  
 —, doll, 2729.  
 —, —, arms of, 2730.  
 —, —, eyes of, 2730.  
 —, —, heads of, 2730.  
 —, dominoes of, 2728.  
 —, drawing slates of, 2729.  
 —, dress shields of, 2710, 2741.  
 —, dress stiffeners of, 2710.  
 —, dyeing, 1895, 1896, 2681.  
 —, ear drum of, 2702.  
 —, ear expander of, 2703.  
 —, ear screen of, 2703.  
 —, ear trumpet of, 2703.  
 —, elasticity, determining, 2759.  
 —, electric cells of, 2699.  
 —, embossing, 2685.  
 —, embossing photographs, 2917.  
 —, emery wheels of, 2697.  
 —, eye bath of, 2744.  
 —, eyelets of, 2704.  
 —, eyes, 2743.  
 —, eye shade of, 2703.  
 —, fabrics of, 2710.  
 —, face protectors of, 2703.  
 —, fans of, 2712.  
 —, fashion busks of, 2710.  
 —, feathers of, 2711.  
 —, films, exceedingly thin, 1762.  
 —, film supports of, 2748.  
 —, fish glue for reducing inflammability of, 2753, 2754.  
 —, fishing line coated with, 2729.  
 —, flexible needle of, 2711.  
 —, flowers, artificial, 2712.  
 —, focussing screens of, 2917.  
 —, foot arch supports of, 2709, 2741.  
 —, fork handles of, 2696.  
 —, frame tubes of, 2698.  
 —, frames of, 2917.  
 —, funnels of, 2917.  
 —, games composed of, 2728.  
 —, gelatin for reducing inflammability of, 2753, 2754.  
 —, gem inlaying with, 2712.  
 —, glove eyelets, 2704.  
 —, glove fastener of, 2711.  
 —, go-carts of, 2729.  
 —, gold incrustated on, 2690.  
 —, golf ball of, 2724.  
 —, golf ball cleaners of, 2727.  
 —, golf club of, 2727.  
 —, gum-para and, 2579.  
 Celluloid, gutters of, 2917.  
 —, hair pin of, 2714.  
 —, handkerchief of, 2711.  
 —, handles of, 2696.  
 —, handle bars of, 2698.  
 —, hardness, determining, 2759.  
 —, hat stiffener of, 2703.  
 —, hats stiffened with, 2702.  
 —, hat sweat bands of, 2702.  
 —, hearing appliances of, 2703, 2741.  
 —, heels of, 2709.  
 —, helmet of, 2702.  
 —, heat of combustion of, 1791.  
 —, history of, 2669.  
 —, hockey balls of, 2728.  
 —, hockey sticks of, 2727.  
 —, hollow rings of, 2686.  
 —, hollow balls of, 2722.  
 —, horse shoe of, 2709.  
 —, imitating tortoise shell by, 2721.  
 —, imitating cloisonne by, 2722.  
 —, imitating meerschaum by, 2720.  
 —, imitating marble by, 2721.  
 —, imitating red coral by, 2720.  
 —, imitation jewelry of, 2712.  
 —, impregnating paper with, 2578.  
 —, incendiary shell of, 2697.  
 —, incombustible, triphenyl borate for, 3043.  
 —, incombustible, tricresyl borate, 3043.  
*Celluloid, incombustible, see also Celluloid, unflammable.*  
 —, incrusting metals on, 2690.  
 —, indene for reducing inflammability of, 2752.  
 —, indian clubs of, 2729.  
 —, ivory, substitute for, 2718.  
 —, inflammability, alum for reducing, 1789.  
 —, —, aluminium acetate for reducing, 1787, 1789.  
 —, —, aluminium bromide for reducing, 1779, 1782.  
 —, —, aluminium chloride for reducing, 1779, 1782.  
 —, —, aluminium hydroxide for reducing, 1779, 1789.  
 —, —, aluminium iodide for reducing, 1779, 1782.  
 —, —, aluminium ricinoleate for reducing, 1786.  
 —, —, aluminium silicate for reducing, 1787.  
 —, —, aluminium sulfate for reducing, 1789, 1790.  
 —, —, aluminium sulforicinoleate for reducing, 1786.  
 —, —, ammonium bromide for re-

- ducing, 1779.  
 Celluloid, inflammability, ammonium carbamate for reducing, 1790.  
 —, —, ammonium carbonate for reducing, 1790.  
 —, —, ammonium chloride for reducing, 1779, 1788.  
 —, —, ammonium iodide for reducing, 1779.  
 —, —, ammonium magnesium phosphate for reducing, 1788.  
 —, —, ammonium nitrate for reducing, 1788.  
 —, —, ammonium oxalate for reducing, 1789, 1790.  
 —, —, ammonium sulfate for reducing, 1790.  
 —, —, amyl borate for reducing, 1786.  
 —, —, amyl silicate, for reducing, 1787.  
 —, —, antimony chloride for reducing, 1790.  
 —, —, barium chloride for reducing, 1779, 1780.  
 —, —, barium chromate for reducing, 1779, 1780.  
 —, —, barium iodide, for reducing, 1779, 1780.  
 —, —, barium phosphate for reducing, 1779, 1780.  
 —, —, beeswax for reducing, 1785.  
 —, —, borated benzene for reducing, 1787.  
 —, —, borates for reducing, 1786.  
 —, —, boric acid for reducing, 1786.  
 —, —, butyl borate for reducing, 1786.  
 —, —, butyl silicate for reducing, 1787.  
 —, —, cadmium chloride for reducing, 1779.  
 —, —, cadmium bromide for reducing, 1779.  
 —, —, cadmium iodide for reducing, 1779.  
 —, —, calcium arsenate for reducing, 1780.  
 —, —, calcium arsenite for reducing, 1780.  
 —, —, calcium chloride for reducing, 1779, 1786.  
 —, —, calcium chromate for reducing, 1779, 1780.  
 —, —, calcium iodide for reducing, 1779, 1780.  
 —, —, calcium oxalate for reducing, 1779, 1789.  
 —, —, calcium phosphate for reducing, 1779, 1780.  
 Celluloid, inflammability, calcium sulfate for reducing, 1779, 1782.  
 —, —, camphogine for reducing, 1790.  
 —, —, cellulose acetate for reducing, 1790.  
 —, —, cetyl palmitate for reducing, 1785.  
 —, —, chondrin for reducing, 1790.  
 —, —, chromium bromide for reducing, 1779.  
 —, —, chromium chloride for reducing, 1779.  
 —, —, chromium iodide for reducing, 1779.  
 —, —, chromium oxide for reducing, 1780.  
 —, —, cobalt bromide for reducing, 1779, 1782.  
 —, —, cobalt chloride for reducing, 1779, 1782.  
 —, —, cobalt iodide for reducing, 1779, 1782.  
 —, —, cobalt phosphate for reducing, 1780.  
 —, —, copper (ic) bromide for reducing, 1779, 1782.  
 —, —, copper (ic) chloride for reducing, 1779, 1782.  
 —, —, copper (ic) iodide for reducing, 1779, 1782.  
 —, —, diethyl disilicate for reducing, 1787.  
 —, —, diethyl oxalate for reducing, 1789.  
 —, —, dinitroacetylcellulose for reducing, 1790.  
 —, —, dinitroxylen for reducing, 1785.  
 —, —, disilicic esters for reducing, 1787.  
 —, —, ethyl borate for reducing, 1786.  
 —, —, ethyl monosilicate for reducing, 1787.  
 —, —, ethyl silicate for reducing, 1787, 1789.  
 —, —, gelatin for reducing, 1790.  
 —, —, glyceryl orthosilicate for reducing, 1788.  
 —, —, glyceryl silicates for reducing, 1788.  
 —, —, hexaethyl disilicate for reducing, 1787.  
 —, —, iron (ic) iodide for reducing, 1779.  
 —, —, iron (ic) bromide for reducing, 1779.  
 —, —, iron (ic) chloride for reducing, 1779.



Celluloid, inflammability, iron (ous) chloride for reducing, 1780.

—, —, iron (ic) oxalate for reducing, 1789.

—, —, lead chloride for reducing, 1779, 1780.

—, —, lead chromate for reducing, 1779, 1780.

—, —, lead fluoride for reducing, 1780.

—, —, lead iodide for reducing, 1779, 1780.

—, —, lead nitrite for reducing, 1780.

—, —, lead oxychloride for reducing, 1788.

—, —, lead phosphate for reducing, 1779, 1780.

—, —, lead ricinoleate for reducing, 1786.

—, —, lead sulforicinoleate for reducing, 1786.

—, —, lithium bromide for reducing, 1779.

—, —, lithium chloride for reducing, 1779.

—, —, lithium iodide for reducing, 1779.

—, —, magnesium bromide for reducing, 1779.

—, —, magnesium borate for reducing, 1788.

—, —, magnesium chloride for reducing, 1779, 1789.

—, —, magnesium iodide for reducing, 1779.

—, —, magnesium oleate for reducing, 1785.

—, —, magnesium oxide for reducing, 1780.

—, —, magnesium ricinoleate for reducing, 1786.

—, —, magnesium sulfate for reducing, 1789.

—, —, magnesium sulforicinoleate for reducing, 1786.

—, —, manganese bromide for reducing, 1779, 1782.

—, —, manganese chloride for reducing, 1779, 1782.

—, —, manganese iodide for reducing, 1779, 1782.

—, —, mercury (ic) bromide for reducing, 1779.

—, —, mercury (ic) chloride for reducing, 1779.

—, —, mercury (ic) iodide for reducing, 1779.

—, —, methyl borate for reducing, 1786.

Celluloid, inflammability methyl silicate for reducing, 1787, 1789.

—, —, microcosmic salt for reducing, 1788.

—, —, naphthyl carbonate for reducing, 1785.

—, —, naphthyl phosphate for reducing, 1785.

—, —, nickel bromide for reducing, 1779, 1782.

—, —, nickel chloride for reducing, 1779, 1782.

—, —, nickel iodide for reducing, 1779, 1782.

—, —, nitrocumene for reducing, 1785.

—, —, oxalic esters for reducing, 1789.

—, —, paraffin for reducing, 1785.

—, —, potassium oxalate for reducing, 1789.

—, —, propyl borate for reducing, 1786.

—, —, propyl silicate for reducing, 1787.

—, —, quartz for reducing, 1787.

—, —, resinsates for reducing, 1786.

—, —, resinoleates for reducing, 1786.

—, —, silica for reducing, 1787.

—, —, silicic ethers for reducing, 1787.

—, —, sodium ammonium phosphate for reducing, 1788.

—, —, sodium bicarbonate for reducing, 1788, 1790.

—, —, sodium carbonate for reducing, 1788.

—, —, sodium oleate for reducing, 1785.

—, —, sodium oxalate for reducing, 1789, 1790.

—, —, sodium palmitate for reducing, 1785.

—, —, sodium silicate for reducing, 1787.

—, —, sodium stearate for reducing, 1785.

—, —, spermaceti for reducing, 1785.

—, —, stearite for reducing, 1790.

—, —, strontium bromide, for reducing, 1779.

—, —, strontium chloride, for reducing, 1779.

—, —, strontium iodide for reducing, 1779.

—, —, tetracetyloctonitrocellulose, for reducing, 1790.

—, —, tetraethyl silicate for reducing, 1788.

- Celluloid, inflammability, trinitroxy-  
ylene for reducing, 1785.
- , —, triphenyl phosphate for re-  
ducing, 1790.
- , —, tungsten salts for reducing,  
1789.
- , —, urea for reducing, 1790.
- , —, urea oxalate for reducing,  
1789.
- , —, vaseline for reducing, 1785.
- , —, vegetable wax for reducing,  
1785.
- , —, water glass for reducing, 1787.
- , —, zinc acetate for reducing, 1785.
- , —, zinc bromide for reducing,  
1779.
- , —, zinc chloride for reducing,  
1779, 1788.
- , —, zinc iodide for reducing,  
1779.
- , —, zinc oxide for reducing, 1779.
- , —, zinc oxychloride for reducing,  
1788.
- , —, zinc ricinoleate for reducing,  
1786.
- , —, zinc sulforicinoleate, 1786.
- , inhaler of, 274.
- , inhaling apparatus of, 2743.
- , initials of, 2712.
- , inks for writing on, 2696.
- , inlaying, 2690.
- , inlaying with, 2680.
- , inlaying metal goods with, 2680.
- , insoles of, 2709.
- , instrument handles of, 2742.
- , instrument keys of, 2730.
- , insulating by, 2700.
- , intaglio plate of, 2746.
- , intaglio design of, 2712.
- , iron caseinate for reducing in-  
flammability of, 2754.
- , jar cover of, 2718.
- , jet imitating by, 2722.
- , jewel slide of, 2712.
- , jewelry of, 2712.
- , jewelry clasp for, 2712.
- , kaleidoscope of, 2729.
- , knife handles of, 2696.
- , labels of, 2701.
- , label, transparent on mattress,  
2701.
- , lace stipener of, 2711.
- , lacing fastenings of, 2703.
- , lacing strips of, 2709.
- , lacing tips of, 2709.
- , lacquering gold balls of, 2728.
- , lacquers of, 2572, 2691, 2698.
- Celluloid, lacquers of, acetic acid for,  
2578.
- Celluloid, lacquers, acetone for, 2578.
- , —, acryone and wax for, 2578.
- , —, amyl acetate for, 2578.
- , —, amyl formate for, 2578.
- , —, balloon envelopes for, 2579.
- , —, benzoin for, 2578.
- , —, calcium chloride for, 2578.
- , —, Canada balsam for, 2578.
- , —, cartridge cases, waterproofing  
for, 2579.
- , —, castor oil for, 2578.
- , —, cedar oil for, 2578.
- , —, cements, leather for, 2579.
- , —, copal for, 2578.
- , —, ebonite, cements for, 2579.
- , —, ethyl acetate for, 2578.
- , —, ethyl butyrate for, 2578.
- , —, fabrics, coating for, 2579.
- , —, gelatin for, 2578.
- , —, leather, cements for, 2579.
- , —, linseed oil for, 2578.
- , —, magnesium chloride for, 2579.
- , —, methylated spirit for, 2578.
- , —, methylethyl ketone for,  
2578.
- , —, *p*-nitrotoluene for, 2578.
- , —, oil of juniper for, 2578.
- , —, shellac for, 2578.
- , —, tiles, waterproofing for,  
2579.
- , —, venice turpentine for, 2578.
- , —, vinyl acetate for, 2578.
- , —, vinyl chloracetate for, 2578.
- , lacrosse balls of, 2728.
- , levers of, 2698.
- , light filters of, 2875.
- , lining hollow articles with, 2686.
- , lithographic stone of, 2746.
- , lithotransfers of, 2909.
- , lorgnette holder of, 2712.
- , lubricant containing, 2578.
- , magic lantern slides of, 2748.
- , magnesium caseinate for reducing  
inflammability of, 2754.
- , magnesium resinate for reducing  
inflammability of, 2752.
- , manicure instrument of, 2718.
- , manufacture of, methods of, 2770.
- , martingale rings of, 2686.
- , massage comb, 2718.
- , massage appliances of, 2742.
- , mastic for reducing inflam-  
mability of, 2752.
- , measures of, 2916.
- , measuring cups of, 2917.
- , medallions of, 2717.
- , melchior picks of, 2730.
- , memorandum tablet of, 2717.
- , metallic incrustations of, 2680.

- Celluloid, mirror back of, 2711, 2714.  
 —, mosaic imitating by, 2722.  
 —, moulding, 2677, 2682.  
 —, moulding gear cases with, 2698.  
 —, mounting billiard cue tips with, 2724.  
 —, mud guards of, 2658, 2698.  
 —, music clips of, 2730.  
 —, musical instruments containing, 2730.  
 —, nail brush of, 2713.  
 —, nail polisher of, 2718.  
 —, necklace of, 2712.  
 —, necklace fastening of, 2712.  
 —, necktie adjusters of, 2708.  
 —, necktie retainers of, 2708.  
 —, negatives of, 2908.  
 —, nickel caseinate for reducing inflammability of, 2754.  
 —, nitrated paper for, 533, 1815.  
 —, nitrated *Ulex Europens* for, 328.  
 —, nitrated wood for, 321.  
 —, nitrogen in, determining, 2319.  
 —, nitronaphthalin for reducing the inflammability of, 2752.  
 —, *p*-nitrotoluene for reducing inflammability of, 2752.  
 —, non-inflammable, 1792.  
 —, onyx imitating by, 2722.  
 —, open seam coverings of, 2685.  
 —, ophthalmological uses of, 2743.  
 —, ornamenting, 2691, 2744.  
 —, orthopedic uses of, 2743.  
 —, otological uses of, 2743.  
 —, pads of, 2742.  
 —, paint remover containing, 2567.  
 —, paper cartridges containing, 2697.  
 —, parasol tips of, 2712.  
 —, parlor tennis balls of, 2722.  
 —, pens of, 2695.  
 —, penholders of, 2695.  
 —, pessary of, 2742.  
 —, phonograph boxes of, 2731.  
 —, phonograph containing, 2731.  
 —, phonograph horns of, 2732.  
 —, phonograph records of, 2731.  
 —, phonograph reproducing needles of, 2733.  
 —, phonograph resonators of, 2733.  
 —, phonograph sound boxes of, 2732.  
 —, photo diaphragms of, 2748.  
 —, photomechanical uses of, 2908.  
 —, photophotograms of, 2733.  
 —, photo-reliefs of, 2917.  
 —, photo screens of, 2748.  
 —, physical constants of, 2756.  
 —, piano keys of, 2730.  
 —, pigments inlaid with, 2680.  
 Celluloid, ping pong balls, 2728.  
 —, pipe tips of, 2696.  
 —, planing, 2682.  
 —, plate lifters of, 2917.  
 —, playing cards of, 2729.  
 —, plasters of, 2741.  
 —, plastic of soya bean and, 2754.  
 —, plastic embossing, 2685.  
 —, plectrums of, 2730.  
 —, plumes of, 2711.  
 —, pocket book of, 2717.  
 —, pocket clip of, 2712.  
 —, pocket lighters of, 2697.  
 —, polishing, 2680.  
 —, polychrome screens of, 2876.  
 —, portfolio of, 2717.  
 —, potassium caseinate for reducing inflammability of, 2754.  
 —, poultry rings of, 2680.  
 —, powder puff of, 2718.  
 —, preserving, 2680.  
 —, primers of, 2697.  
 —, printing on, 2696, 2744.  
 —, printing blocks of, 2746.  
 —, printing paper of, 2748.  
 —, properties of, 2756.  
 —, protecting from radium by, 2742.  
 —, pulmonary appliances of, 2742.  
 —, pumicing, 2680.  
 —, pump clips of, 2698.  
 —, pus cups of, 2742.  
 —, puzzles of, 2728.  
 —, quills of, 2695.  
 —, quoits of, 2728.  
 —, razor blade of, 2712.  
 —, razor handle of, 2718.  
 —, reclaiming films of, 2756.  
 —, records, transparent phonograph, 2733.  
 —, rectal appliances of, 2742.  
 —, reinforcing wearing apparel by, 2710.  
 —, reliefs of, 2917.  
 —, reproduction technic using, 2746.  
 —, reservoir of, 2717.  
 —, respirator of, 2741.  
 —, re-working, 2676.  
 —, Ribbe accumulator of, 2658.  
 —, ring protector, 2712.  
 —, ring stoppers of, 2688.  
 —, rings of, 2712.  
 —, rods of, 2688.  
 —, scalpettes of, 2702.  
 —, screen plates of, 2876.  
 —, screens, focussing, 2917.  
 —, screens, polychrome, 2876.  
 —, sensitized films of, 2748.  
 —, shaving, 2682.  
 —, sheeting, 2682.

Celluloid, sheets of, 2682.  
 —, sheets, stained, 2683.  
 —, shellac for reducing inflammability of, 2752.  
 —, shirt bosom fronts of, 2706.  
 —, shoe bottom fillers of, 2709.  
 —, shoe caps of, 2709.  
 —, shoe enamels of, 2709.  
 —, shoe eyelets of, 2704.  
 —, shoe fastener of, 2711.  
 —, shoe lasts of, 2709.  
 —, shoe patches of, 2709.  
 —, shoe stiffeners of, 2709.  
 —, shoe tips of, 2709.  
 —, signs of, 2701.  
 —, silvered, 2883.  
 —, silver incrustated on, 2690.  
 —, skirt fastener of, 2711.  
 —, small boats of, 2729.  
 —, soap dish of, 2717.  
 —, soap holder of, 2717.  
 —, soap tablet float, 2717.  
 —, sodium caseinate for reducing inflammability of, 2754.  
 —, spangles of, 2712.  
 —, spectacle frames of, 2703, 2744.  
 —, speculum of, 2742.  
 —, spinning tops of, 2729.  
 —, squeegees of, 2917.  
 —, stamps of, 2746.  
 —, stay of, 2709.  
 —, stereotype of, 2746.  
 —, stethoscope of, 2741.  
 —, stones inlaid by, 2690.  
 —, storage acids in vessels coated with, 958.  
 —, studs of, 2703.  
 —, substitute for, 105, 2759.  
 —, —, albuminoids, 2759.  
 —, —, casein, 2759.  
 —, —, cellulose acetate for, 3060.  
 —, —, gelatin, 2759.  
 —, —, soya bean, 2551.  
 —, substratum for paper of, 2862.  
 —, sunshade tips of, 2712.  
 —, support for maps of, 2908.  
 —, surgical splints of, 2743.  
 —, surgical uses of, 2740.  
 —, suspensory bandages of, 2742.  
 —, suture plate of, 2741.  
 —, syringes of, 2740.  
 —, tampon introducers of, 2742.  
 —, temperature of ignition, determining, 2759.  
 —, tennis balls of, 2287.  
 —, tennis racquets of, 2728.  
 —, thermometer protectors, 2742.  
 —, thimble of, 2712.  
 —, thimble block of, 2712.

Celluloid, thread coated with, 2710.  
 —, thread-reels of, 2729.  
 —, tire rims of, 2698.  
 —, tongue depressor of, 2742.  
 —, tooth brush of, 2713.  
 —, tooth brush case of, 2717.  
 —, toothpicks of, 2696.  
 —, toothpick case of, 2740.  
 —, tortoise shell with, 2721.  
 —, toupee of, 2702.  
 —, toys of, 2728.  
 —, transfers of, 2748.  
 —, transparencies of, 2917.  
 —, transparent package of, 2718.  
 —, transparent screens of, 2703.  
 —, trays of, 2917.  
 —, trephining apparatus 2741.  
 —, trusses of, 2741, 2743.  
 —, tubes of, 2688.  
 —, tungsten resinate for reducing inflammability of, 2752.  
 —, turpentine for reducing inflammability of, 2752.  
 —, typewriter ribbons coated with, 2710.  
 —, umbrella tips of, 2711.  
 —, unflammable, 1779, 3041.  
*Celluloid, unflammable, see also Celluloid incombustible.*  
 —, use of, in card games, 2729.  
 —, —, in graphic arts, 2746.  
 —, —, in optics, 2744.  
 —, —, in vehicle manufacture, 2698.  
 —, vaccine shields of, 2741.  
 —, varnishes, 2903.  
 —, vehicle frame coatings of, 2698.  
 —, velocipede handles of, 2698.  
 —, veneering, 2684.  
 —, violin mutes of, 2730.  
 —, violin tailpieces of, 2730.  
 —, vignetting with, 2917.  
 —, viscosity solutions of, 1739.  
 —, waist fastener of, 2711.  
 —, waste, recovery of, 2755.  
 —, —, utilization, 2755.  
 —, watch crystal of, 2712.  
 —, waterproofing with, 2690.  
 —, waterproofing collars by, 2708.  
 —, waterproofing paper with, 2615.  
 —, waterproofing sweat bands by, 2702.  
 —, wigs of, 2702.  
 —, wound shields of, 2741.  
 —, wristlet of, 2712.  
 —, wrist watch protector, 2712.  
 —, writing on, inks for, 2686.  
 —, zinc caseinate for reducing inflammability of, 2754.

- Celluloid, zinc resinsates for reducing inflammability of, 2752.  
*Celluloid, see also Cellulose nitrate.*  
 Celluloidine, 1636, 1693, 2669, 2752, 2969.  
 Cellulon, 246, 248.  
 Cefulose, 1, 7.  
 —, absorbent pad of, 336.  
 —, absorbing, aluminium salts for, 114.  
 —, —, copper salts for, 114.  
 —, —, nickel salts for, 114.  
 —, —, potassium salts for, 114.  
 —, absorption compounds of, 147.  
 —, absorption sodium hydroxide by, 3064.  
 —, absorption tannin by, 62.  
 —, absorption of, 345.  
 —, —, by uranium salts, 63.  
 —, acetated, manufacture of, 3005.  
*Cellulose, acetated, see also Cellulose acetate.*  
 —, acetating, 37, 130, 188, 189.  
 —, —, alkylamine sulfuric salts, as catalyst in, 3010.  
 —, —, ammonium bisulfate as catalyst in, 3009.  
 —, —, ammonium nitrate, as catalyst in, 3009.  
 —, —, aniline bisulfate as catalyst in, 3010.  
 —, —, aniline sulfate as catalyst in, 3010.  
 —, —, benzene sulfinic acid, as catalyst in, 3009, 3011.  
 —, —, copper salts as catalyst in, 3010.  
 —, —, dimethyl sulfate, as catalyst in, 3009.  
 —, —, ethyl sulfuric acid, as catalyst in, 3009.  
 —, —, fibrous, 3046.  
 —, —, iron sulfate as catalyst in, 3010.  
 —, —, lead chamber crystals, as catalyst in, 3008.  
 —, —, methylamine bisulfate, as catalyst in, 3010.  
 —, —, methylamine sulfate as catalyst in, 3010.  
 —, —, methylene sulfate as catalyst in, 3012.  
 —, —, monochloroacetic acid, as catalyst in, 3011.  
 —, —, nitric acid as catalyst in, 3009.  
 —, —, nitrosulfuric acid as catalyst in, 3010.  
 —, —, phenol sulfonic acid as catalyst in, 3009.  
 —, —, phosphorus chloride as catalyst in, 3011.  
*Cellulose, acetating, pyridine sulfate as catalyst in, 3010.*  
 —, —, pyrosulfuryl chloride as catalyst in, 3011.  
 —, —, raw materials for, 2992.  
 —, —, sodium ethylsulfate as catalyst in, 3010.  
 —, —, sulfacetic acid as catalyst in, 3011.  
 —, —, sulfinic acid as catalyst in, 3009.  
 —, —, sulfoic acid as catalyst in, 3009.  
 —, —, sulfuric acid, as catalyst in, 3008.  
 —, —, sulfur chloride as catalyst in, 3011.  
 —, —, sulfuric acid as catalyst in, 3008.  
 —, —, sulfur trioxide as catalyst in, 3009.  
 —, —, superficially, 3006.  
 —, —, toluidine sulfate as catalyst in, 3010.  
 —, —, trichloroacetic acid as catalyst in, 3011.  
 —, —, trioxymethylene as catalyst in, 3012.  
 —, acetic acid from, 41.  
*Cellulose, acetic-sulfuric ester of, see Cellulose acetosulfate.*  
 —, acetolysis of, 187, 189, 191, 662.  
 —, acetosulfates of, 1908.  
 —, acetosulfuric esters of, 187.  
*Cellulose, acetylated, see Cellulose, acetated.*  
*Cellulose, acetylation, see also Cellulose, acetating.*  
 —, acetyl iodide as catalyst of, 192.  
*Cellulose, acetylated, see Cellulose acetate.*  
 —, acid absorption of, heat evolved by, 118.  
 —, acid derivatives of, 122, 125.  
 —, action acetic acid on, 120.  
 —, action acids on, 116.  
 —, action air on, 59.  
 —, action alkalis on, 213, 221.  
 —, action of aluminium chloride on, 113, 263.  
 —, action of aluminium sulfate on, 113.  
 —, action ammonia on, 45.  
 —, action of ammonium persulfate on, 125, 155.  
 —, action benzene on, 235.  
 —, action of bromine on, 159.  
 —, action calcium chloride on, 45, 263.

- Cellulose, action caustic soda on, 218.  
 —, action of cerium salts on, 112.  
 —, action of chlorine on, 158.  
 —, action of citric acid on, 110, 120.  
 —, action of copper salts on, 112.  
 —, action of diastase on, 347.  
 —, action of heat on, 52.  
 —, action of hot water on, 519.  
 —, action of hydrobromic acid on, 15, 19, 109.  
 —, action of hydrochloric acid on, 15, 19, 120.  
 —, action of hydrofluoric acid on, 142.  
 —, action of hydrogen dioxide on, 150, 160.  
 —, action of hydrogen sulfate on, 122.  
 —, action of iodine on, 40, 159, 263.  
 —, action of iron salts on, 112.  
 —, action of lead salts on, 112.  
 —, action of light on, 40, 59.  
 —, action of magnesium chloride on, 113, 120.  
 —, action of magnesium sulfate on, 120.  
 —, action of *Mucor boudard* on, 340.  
 —, action of nitric acid on, 161.  
 —, action of nitrogen oxide on, 161.  
 —, action of oxalic acid on, 110, 121, 148, 349.  
 —, action of ozone on, 151.  
 —, action of phosphoric acid on, 120, 263.  
 —, action of potassium ferrocyanide on, 164.  
 —, action of potassium permanganate on, 164.  
 —, action of potassium persulfate on, 155.  
 —, action of ptyalin on, 347.  
 —, action of saliva on, 344, 347.  
 —, action of salts on, 111.  
 —, action of sodium acetate on, 120.  
 —, action of sodium chloride on, 120.  
 —, action of sodium oxalate on, 120.  
 —, action of sodium sulfate on, 120.  
 —, action of sodium sulfate (acid) on, 120.  
 —, action of sulfur dioxide on, 122.  
 —, action of sulfuric acid on, 120.  
 —, action of tartaric acid on, 110, 120.  
 —, action of titanium salts on, 112.  
 —, action of toluene-*p*-sulfonyl chloride on, 1909.  
 —, action of trichloroacetic on, 120.  
 —, action of water on, 144.  
 —, action of zinc chloride on, 120.  
*Cellulose, acylation, see Cellulose nitration and acetylation.*  
 —, aldehydes from, 41.  
 Cellulose, alkali, 234.  
 —, —, removing gases by, 3083.  
 —, alkaline hydrolysis of, 356.  
 —, alkylation, 23.  
*Cellulose alkylation, see also Cellulose ethylation and methylation.*  
 —, alkyl esters of, 3061.  
 —, aluminium acetate and, 64.  
 —, amidized, 45.  
 —, ammonium salts as solvent of, 68.  
 —, amorphous, insulating material of, 240.  
 —, —, nitration of, 240.  
 —, —, preparation of, 240  
 —, analysis of, 348.  
 —, —, alkaline hydrolysis, 356.  
 —, —, moisture, 358.  
 —, animal, 325.  
*Cellulose, animal, see also Animal celluloses.*  
 —, artificial leather of, 336.  
 —, artificial wool from, 336.  
 —, ash in, 239.  
 —, assimilation of, 348.  
 —, bacterial action on, 338.  
 —, bale breaking, 2207.  
 —, benzoylation of, 222  
 —, bibliography of, 1.  
 —, bleached, cellulose nitrate from, 1675.  
 —, —, nitrating, 1680.  
 —, bleaching, 26, 158, 163, 604, 2071.  
 —, —, chlorine process, 606.  
 —, —, electrolytic, 27.  
 —, —, Kellner method, 27  
 —, —, Nemethy method, 27.  
 —, —, without chlorine, 618.  
 —, "bleaching test" of, 374.  
 —, bottle capsules washer of, 350.  
 —, breaking up, 2207.  
 —, brisant, 1693.  
 —, calcium salts as solvents of, 68.  
 —, carbamic ester of, 324.  
 —, carbonization of, 113.  
 —, catalysts for, 192.  
 —, catechutannic acid, 63.  
 —, cementation of, 99.  
 —, charring of, 44.  
 —, chloral hydrate as solvent of, 2384.  
 —, chlorides as solvents of, 68.  
 —, chlorination of, 11, 158, 159, 257.  
 —, cholestrin in removal, 26  
 —, clarifying wines by, 334.  
 —, classification of, 8, 11.  
 —, cleansing teeth with acid halides and, 356.  
 —, colloidal, 126.  
 —, —, Guignet, 1637.

## Cellulose, colloidal, Lilienfeld process, 127.

- , —, nitration of, 126.
- , —, properties of, 30.
- , —, solutions of, 31.
- , —, structure of, 31.
- , coloring matter in, removal of, 26.
- , combining rubber with, 335.
- , comminution and nitration, 1640.
- , composition of, 14.

*Cellulose, compound, see Compound celluloses.*

- , condensations of, 234.
- , condensing oxygen on, 52.
- , co-nitration of, 2254.
- , co-nitration of gelatin with, 1645.
- , constitution of, 14, 18, 58, 662.
- , conversion to glucose, 37.
- , conversion of, into mucilage, 49.
- , conversion to sugar, 664.
- , copper number of, 145.
- , copper value of, 616.
- , —, determining, 381.
- , corn pith, nitration of, 1805.
- , crude, analysis of, 374.
- , crystals of, 40.
- , cuprammonium, 234.
- , —, applications of, 77, 85.
- , —, filters, 177.
- , —, solutions of, coagulants for, 76.
- , —, —, dissociation of, 84.
- , —, —, optical activity of, 76.
- , —, —, precipitating, 76.
- , —, —, viscosity, 46.
- , —, uses, 78.
- , —, viscosity-concentration curve, 1742.
- , —, vulcanized fiber from, 104.
- , —, waterproofing with, 77.
- , cuprammonium as solvent of, 68.

*Cellulose, cuticular, see Cutin*

- , decomposition of, 19, 20, 41, 54, 338, 339.
- , —, bacterial, 15.
- , —, 2,5-dimethylfuran in, 42.
- , —, maltol in, 42.
- , —, products of, 56, 57.
- , definition of, 2.
- , degradation products of, 26.
- , de-gumming, 592.
- , dehydration of, 52.
- , density of, 1755, 1756.
- , depolarization, 1760.
- , depolymerized, 562.
- , —, nitrating, 562.
- , depolymerizing of, 55, c.
- , —, Berl process, 562.
- , deterioration of, by fungi, 343.

## Cellulose, determining, 362.

- , determining in cotton, 543.
- ,  $\alpha$  —, determining, 374.
- ,  $\beta$  —, determination of, 253, 374.
- , development of, 1.
- , dextrose from, 201.
- , dextrose pentacetate from, 192.
- , dialysis, 1760.
- , diaphragms of, 335.
- , differentiating hydrocellulose from, 134.
- , differentiation from nitrocellulose, 1591.
- , digestion of, 345.
- , —, by enzymes, 346.
- , disintegrated, nitric acid esters of, 1664.
- , dissolving, aluminium chloride for, 105.
- , —, alkylamine and copper for, 72.
- , —, amine and copper, 72.
- , —, ammonium thiocyanate for, 108.
- , —, antimony (ic) chloride for, 109.
- , —, barium bromide and formic acid for, 110.
- , —, bariur-mercuric iodide for, 108.
- , —, barium thiocyanate for, 108.
- , —, bismuth bromide for, 101, 109.
- , —, bismuth chloride for, 101, 108.
- , —, bismuth iodide and formic acid for, 110.
- , —, calcium bromide for, 108.
- , —, calcium bromide and formic acid for, 110.
- , —, calcium chloride for, 105.
- , —, calcium chloride and formic acid for, 110.
- , —, calcium chloride and tri-chloroacetic acid for, 110.
- , —, calcium thiocyanate for, 107, 108.
- , —, calcium iodide for, 108.
- , —, cerium (ous) chloride for, 109.
- , —, chromium (ic) chloride for, 109.
- , —, cobalt chloride for, 109.
- , —, copper and amines, 72.
- , —, diamines and copper for, 72.
- , —, ethylene diamine and copper for, 72.
- , —, ethylenediaminotrimethylene-diamine and copper for, 72.
- , —, gold (ic) chloride for, 109.
- , —, hydrobromic acid for, 95, 96.

- Cellulose, dissolving, hydrochloric acid for, 92, 100.
- , —, —, Ostenberg process, 95.
  - , —, —, Willstaetter process, 93
  - , —, hydrochloric and sulfuric acids for, 96.
  - , —, hydrofluoric acid for, 94.
  - , —, isocyanic ester for, 107.
  - , —, lead iodide and formic acid for, 110.
  - , —, lithium bromide for, 108
  - , —, lithium chloride for, 108.
  - , —, lithium chloride and formic acid for, 110.
  - , —, lithium chloride and trichloroacetic acid for, 110
  - , —, lithium iodide for, 108
  - , —, lithium nitrate for, 108.
  - , —, lithium thiocyanate for, 107.
  - , —, magnesium bromide and formic acid for, 110
  - , —, magnesium chloride for, 105
  - , —, manganese thiocyanate for, 107, 108
  - , —, mercury (ic) bromide for, 109
  - , —, mercury (ic) iodide and formic acid for, 110
  - , —, mercury (ic) thiocyanate for, 107.
  - , —, methylamine and copper for, 72
  - , —, phosphoric acid for, 96, 100
  - , —, potassium chloride and formic acid for, 110
  - , —, potassium iodide for, 108
  - , —, potassium-mercuric iodide for, 108
  - , —, potassium thiocyanate for, 108
  - , —, sodium iodide for, 108.
  - , —, sodium thiocyanate for, 107, 108
  - , —, strontium iodide for, 108.
  - , —, strontium thiocyanate for, 107, 108.
  - , —, sulfuric acid for, 95, 100, 3021.
  - , —, tetramethylenediamine and copper for, 72.
  - , —, thiocyanates for, 106.
  - , —, tin chloride for, 105.
  - , —, tin (ic) chloride for, 109.
  - , —, titanium (ic) chloride for, 109
  - , —, uranium chloride for, 109.
  - , —, uranyl chloride for, 109.
  - , —, zinc bromide for, 101, 109.
  - , —, zinc chlorate for, 105.
  - , —, zinc chloride for, 101, 2988.
  - , —, —, Brounert process, 103.
- Cellulose, dissolving, zinc iodide for, 101, 105.
- , —, zinc iodide and formic acid for, 110
  - , —, zinc nitrate for, 105.
  - , —, distinguishing cellulose nitrate from, 1698.
  - , —, distilling, 24, 40, 41, 56, 57, 256.
  - , —, Bantlin process, 40.
  - , —, Cross and Bevan process, 4.
  - , —, Erdmann and Schaefer process, 43.
  - , —, Sarasin process, 42.
  - , —, with sodium hydroxide, 58
  - , dry, protecting, 638
  - , drying, 52, 619, 2208
  - , dry distillation of, 664
  - , dyestuffs with, 63.
  - , electric charge of, 49
  - , electric purification of, 331
  - , electrolytic diaphragm of, 334
  - , enhancing affinity dyestuffs for, 45.
  - , esparto, composition of, 333
  - , esparto for, 327, 328
- Cellulose, esterification, see Cellulose, acetalization or nitration*
- , ethers of, 38, 3061
- Cellulose, ethers of, see Methyl, etc., cellulose*
- , etherification of, 23.
  - , ethylated, 38.
- Cellulose, ethylation, see also Cellulose, alkylation*
- , evaluation, viscosity determinations for, 46.
  - , excelsior from, 336
  - , explosive of sodium nitrate, sulfur and, 1604.
  - , fat in, estimating, 359, 542.
  - , fermentation of, 206, 339.
  - , fluorescence of, 51.
  - , fixation of metals by, 141.
  - , formaldehyde, 235.
  - , forms of, 117.
  - , formula of, 14, 16, 17, 18, 19, 25.
  - , formula, Will, 17.
  - , formylating, 3015
  - , —, chlorosulfonic acid as catalyst in, 3016
  - , —, ethylsulfuric acid as catalyst in, 3016.
  - , —, phenol sulfonic acid as catalyst in, 3016.
  - , —, sulfuric acid as catalyst in, 3015.
  - , —, sulfonyl chloride as catalyst in, 3016.
  - , —, zinc chloride as catalyst in, 3015.



*Cellulose, formylation, see also Cellulose formylating.*

*Cellulose, formylized, see also Cellulose formate.*

- , freezing of, 518.
- , furfural value of, 305.
- , gallic acid and, 63.
- , gaseous decomposition of, 56.
- , gases from distillation of, 41.
- , gelatinization of, 2087, 2246.
- , gel-forming properties of, 34.
- , glucose from, 95, 198, 199.
- , glycollic acid from, 45.
- , granular, nitration, 2013.
- , granulated, nitrating, 564.
- , granulating, 564.
- , grinding, 564.
- , grinding and nitrating simultaneously, 2093.
- , guaiacol and, 637.
- , Guignet's, 35.
- , heat of combustion of, 39, 438.
- , heat of formation, 438.
- , heating, 52, 563.
- , heating in gases, 55.
- , heating with water, 45.
- , higher nitrates of, 1902.
- , highly bleached, nitrating, 613.
- , hydrated, 20, 215, 230.
- , —, determining, 377.
- , hydration of, 40, 108, 220, 222, 340, 378, 2087.
- , —, ammonia for, 217.
- , —, degree of, 220.
- , —, determining, 378.
- , —, theory, 30.
- , hydration copper value of, 380.
- , hydrogen fermentation of, 341.
- , hydrocellulose in, 543.
- , —, determining, 381.
- , hydrochloric acid and, 92.
- , hydrolysis of, 19, 148, 189, 194, 220, 361, 564.
- , —, with acid, 121.
- , —, alkaline, 13, 301.
- , —, to dextrose, 191.
- , —, hydrochloric acid for, 94.
- , —, intermediate products of, 147.
- , —, sulfur dioxide for, 204.
- , hydrolyzing, 210.
- , —, hydrochloric acid for, 210.
- , —, hydrofluoric acid for, 202.
- , —, sulfuric acid for, 205.
- , hydroxyl groups in, 16, 24.
- , hygroscopicity of, 378.
- , iodides as solvents of, 68.
- , isolated, examination of, 372.
- , isolation of, 13.
- , ketones from, 41.
- Cellulose, lactic acid from, 45.
- , lyes from sulfite, sulfur from, 1032.
- , magnesian, 2603, 3079.
- , magnesium salts as solvents, 68.
- , mercerization of, 20, 101.
- , —, nitric acid for, 1671.
- , mercerized, cellulose nitrate from, 1675.
- , —, microscopical appearance of, 216.
- , —, nitration of, 29.
- , —, nitrocellulose from, 614.
- , mercury salts as solvents of, 67.
- , methane fermentation of, 341.
- , methyl acetate from, 2500.
- , methylated, 24, 38.
- , —, hydrolysis of, 24.
- , methylation, 23.
- , —, *see also Cellulose alkylation.*
- , microscopical identification of, 357.
- , mildew on, 344.
- , Mitscherlich, 318.
- , mixed acid for nitration of, 1400.
- , modified, acetylation of, 3007, 3008.
- , —, determining, 377.
- , —, rotatory power of solutions, 47.
- , —, *see also Hydrocellulose, Oxy-cellulose.*
- , modifying by heat, Chardonnét method, 43.
- , modifying by heating with glycerol, 1725.
- , modifying, high temperatures for, 43.
- , moisture content, 2208.
- , moisture in, determining, 358, 2259.
- , molecule of, composition, 662.
- , —, reducing size, 29.
- , molecular weight of, 14, 25.
- , monoacetate, optical activity of, 1760.
- , mordants on, 64.
- , mordanting, 115.
- , mucilage from, 602.
- , nitration of, 37, 1662, 1688, 1934, 2209, 2801.
- , —, Abel method, 1940.
- , —, acids required, 2059.
- , —, acid boil, 2071.
- , —, acid overflow, 2197.
- , —, acid recovery, 1948.
- , —, acid storage, 2194.
- , —, acid storage tanks, 2240.
- , —, acid temperature regulation, 2194.

- Cellulose, nitration of, acid weakening, 1425.
- , —, acids, labor requirements, 2234.
- , —, acids required, centrifugal method, 2059.
- , —, Aschas method, 2030.
- , —, Assadas process, 1950.
- , —, bag examination room, 2226, 2228.
- , —, bag holders, 2218.
- , —, bale breaking, 2208.
- , —, Bantock method, 2017.
- , —, beater capacity, 2197.
- , —, beater house elevators, 2197.
- , —, beaters, 2197.
- , —, —, power required, 2197.
- , —, beating, 2244.
- , —, Beck-Nenninger apparatus, 2016.
- , —, Bethisy method, 2030.
- , —, blanket grit separation, 2214.
- , —, blanket washing boxes, 2201.
- , —, blankets, 2201.
- , —, blending, 2107, 2215.
- , —, blending tanks, 2203.
- , —, boiling, 2071, 2211.
- , —, —, discharging, 2212.
- , —, Boursin method, 2026.
- , —, Briailles process, 2005.
- , —, Bunge researches, 1666.
- , —, cellulose used for, 1935.
- , —, centrifugal, 1955.
- , —, —, acid circulating device, 1975.
- , —, —, Allioit apparatus, 1974.
- , —, —, continuous, 1956, 1978.
- , —, —, fume elimination, 1963.
- , —, —, Kron method, 1955.
- , —, —, —, process, 1973.
- , —, —, Morane process, 1956.
- , —, —, Selwig-Lange method, 1956.
- , —, —, Tolhurst apparatus, 1968.
- , —, —, vacuum nitration, 1970.
- , —, —, vapors exhaustion, 1962.
- , —, —, centrifugal, Gebrüder Heine apparatus, 1975.
- , —, —, Chardonnet method, 43, 1955, 2022.
- , —, —, stoneware, 1978.
- , —, —, chopping up, 2093.
- , —, —, Claessen process, 2018.
- , —, —, composition spent acid in, 1462.
- , —, —, continuous, 1930.
- , —, —, Crepelle-Fontaine process, 2006.
- , —, —, Holting's process, 2034.
- Cellulose, nitration of, Crombie process, 2034.
- , —, Crum's experiments, 1585.
- , —, cotton specifications, 2207.
- , —, cotton steeper, 1964.
- , —, cotton waste treatment, 2189, 2207.
- , —, dangers in, 1925.
- , —, Danzer method, 2030.
- , —, degree of, determining, 1517.
- , —, details of, 1684.
- , —, determining yield, 2062.
- , —, Diamanti process, 1, 2003.
- , —, direct dipping, 1943.
- , —, —, acid recovery, 1948.
- , —, —, acids required, 2059.
- , —, —, German practice, 1950.
- , —, —, discharge runway system, 2197.
- , —, displacement, 1978, 2240.
- , —, displacement process, acid displacement, 1991.
- , —, displacement, acid recovery, 1989.
- , —, displacement method, acids required, 2059.
- , —, displacement, Claessen process, 1991.
- , —, —, details of, 1985.
- , —, —, dipping, 2210.
- , —, —, mixed acid for, 1989.
- , —, —, rate of, 1984.
- , —, —, sealing, 2210.
- , —, —, spent acids from, 1989.
- , —, —, water consumed, 1990.
- , —, —, waste acid control, 1993.
- , —, —, Ditmar process, 2023.
- , —, —, drowning, 1948.
- , —, —, drowning nitrocotton, 1948.
- , —, —, drying, cold air supply, 2225.
- , —, —, drainage and save-all, 2225.
- , —, —, hot air supply, 2224.
- , —, —, house equipment, 2220.
- , —, —, Quinan method, working results, 2228.
- , —, —, drying nitrocotton, 2220.
- , —, —, drying stoves, 2215.
- , —, —, efficiency of methods, 2054.
- , —, —, ejector fans, 2194.
- , —, —, electric method, 2005, 2017.
- , —, —, elimination iron, 2088.
- , —, —, factors governing, 1660.
- , —, —, flow sheet, 2232.
- , —, —, fume elimination, 1963.
- , —, —, Fussell system, 2002.
- , —, —, glycerol and, 2254.
- , —, —, Godfrey process, 2011.
- , —, —, Great Britain practice, 2188.
- , —, —, Greening process, 2025.

- Cellulose, nitration of, Gretna practice, 2188.
- , —, grinding, 2093.
  - , —, grinding simultaneously, 2093
  - , —, grit runs, 2242.
  - , —, grit separation, 2200.
  - , —, grit tanks, 2202.
  - , —, Hart process, 2015.
  - , —, Henchman process, 2018
  - , —, hydrocarbon and, 2255.
  - , —, influence nitrogen oxides in, 1661, 1662.
  - , —, influence temperature on, 1660.
  - , —, impurities, removal, 2201.
  - , —, influence water on, 1659, 1685.
  - , —, Kaltenbach apparatus, 2002.
  - , —, Kaltenbach process, 2025.
  - , —, Kron process, 1973.
  - , —, Labbe process, 2030.
  - , —, labor requirements, 2231.
  - , —, launders, 2200.
  - , —, Lenk method, 1934.
  - , —, Liedbeck method, 2111.
  - , —, long fiber combs, 2201.
  - , —, Mackie process, 2009.
  - , —, magazines, 2229.
  - , —, magnets, 2201.
  - , —, mannite and, 2250.
  - , —, Matousek process, 2002, 2003
  - , —, Maxim process, 2013.
  - , —, maximum, 1656, 1658, 1678
  - , —, maximum limit, 1685, 1686
  - , —, mechanics of, 1684.
  - , —, methods, comparison of, 2059.
  - , —, methods of manipulation, 2243.
  - , —, mixed acid for, 1406, 2209.
  - , —, Morane method, 2020.
  - , —, morphological fiber structure, 1660.
  - , —, Müller method, 2026.
  - , —, nitrating house, 2190.
  - , —, nitrating plant, 2239.
  - , —, nitrogen pentoxide for, 1673, 2029.
  - , —, nitrous fumes in, recovery, 1460.
  - , —, operation of dry stoves, 2227.
  - , —, over, remedying, 1952.
  - , —, oxalic acid formed in, 1518.
  - , —, Patronenfabrik method, 1951, 2011.
  - , —, picking, 2212.
  - , —, poacher capacity, 2203.
  - , —, poachers, 2202, 2243.
  - , —, poaching, 2098, 2214.
  - , —, specifications, 2261.
- Cellulose, nitration of, du Pont mechanical system, 1994.
- , —, du Pont mechanical, acids used, 1998.
  - , —, du Pont and Thompson apparatus, 2001.
  - , —, pot, 1934.
  - , —, power required, 2235.
  - , —, power system, screen house, 2218.
  - , —, preliminary treatment for, 29.
  - , —, preliminary washing, 2059.
  - , —, preparation of, 560.
  - , —, brewwashing, 1948.
  - , —, Prost-Michey process, 2019.
  - , —, pulper house wringing, 2216
  - , —, pulping, 2242.
  - , —, fineness, 2214.
  - , —, settling, 2095.
  - , —, specifications, 2260.
  - , —, Queen's Ferry practice, 2238.
  - , —, Quinan process, 2026.
  - , —, reciprocating bin, 2217.
  - , —, reclaiming, 2068.
  - , —, relative efficiency of methods, 2054.
  - , —, removal of acid vapors, 1977.
  - , —, removal of foreign matter, 2102.
  - , —, re-work tank, 2207.
  - , —, re-working nitro cotton, 2215
  - , —, Rheinische method, 1970.
  - , —, Revy process, 2021.
  - , —, save all, 2203.
  - , —, Schneider process, 2020.
  - , —, Schniter process, 2007.
  - , —, Schonlau process, 2026.
  - , —, settling pulped, 2095.
  - , —, screen cleaning room, 2226.
  - , —, screening, 2216
  - , —, screening capacity, 2220.
  - , —, screening house, 2215.
  - , —, screening house save-all, 2219.
  - , —, shafting in, 2219
  - , —, Sinew process, 1930.
  - , —, specifications for, 555, 2260.
  - , —, spent acid, 2210.
  - , —, spent acid pump house, 2194.
  - , —, spilled cotton waste, 2210.
  - , —, stabilizing, 2093, 2211.
  - , —, stationary baffles, 2218.
  - , —, steam required, 2245.
  - , —, steam supply, 2195.
  - , —, steeping, 1945.
  - , —, stuff chest launders, 2200.
  - , —, sulfuric acid removal, 2074.
  - , —, sulfuric esters in, 1907.
  - , —, tank method, 1942, 1949.
  - , —, Tedesco experiments, 1677.

- Cellulose, nitration of, temperature influence on, 1660.  
 —, —, testing, 2262.  
 —, —, tests, 2235.  
 —, —, theory of, 1681.  
 —, —, Thomson process, 1978.  
 —, —, transportation nitrocotton, 2229.  
 —, —, use of centrifuge in, 1952.  
 —, —, utilization wash water, 2067.  
 —, —, vacuum, 1678, 1970, 2006.  
 —, —, Dumon's method, 1970, 1972, 2006.  
 —, —, Nobel process, 1973.  
 —, —, Vajdaly process, 1973.  
 —, —, variables in, 1659, 1674, 1675.  
 —, —, variants in, 1681.  
 —, —, vat boiling, 2241.  
 —, —, vat house, 2194.  
 —, —, Vieille's experiments, 1650.  
 —, —, Voigt method, 2012.  
 —, —, Voswinkel process, 2011.  
 —, —, washing, 2059.  
 —, —, washing boxes, 2201.  
 —, —, wash water, utilization, 2067.  
 —, —, waste acid from, composition of, 1441.  
 —, —, water consumption, 2200.  
 —, —, water required, 2235.  
 —, —, water treatment, 2211.  
 —, —, weighing nitrocotton, 2203.  
 —, —, wet nitrocotton magazines, 2229.  
 —, —, Wolf method, 2010.  
 —, —, working results, 2220.  
 —, —, wringers, 2203.  
 —, —, Wunderlich apparatus, 1951.  
 —, —, yield, 2235.  
 —, —, determining, 2062, 2159.  
 —, —, Zellstoff-fabrik process, 2020.  
 —, nitration of wood and, 1815.  
 —, nitration and comminution, 1640.  
 —, nitrogen fixation by, 850.  
 —, normal, 8, 19, 20, 38.  
 —, —, preparation of, 27.  
 —, nutritive value of, 345, 346.  
 —, oil in, estimation, 359.  
 —, optical activity, 93, 1760.  
 —, optical properties, 47, 1759.  
 —, osmotic pressure with filters of, 1776.  
 —, over-bleached, nitrating of, 615.  
 —, over nitration, remedying, 1952.  
 —, oxalic acid from, 45.  
 —, oxidation of, 15, 60, 166.  
 —, oxidation, catalytic, 2991.  
 —, oxidation of, by chromic acid, 161, 166.  
 —, —, with permanganate, 180.  
 Cellulose, oxidizing agents on, 158.  
 —, oxybutyric acid from, 45.  
 —, oxycellulose in, determining, 381, 543.  
 —, ozone from, 57.  
 —, paper, nitrated, see Paper, nitration.  
 —, parchmentized, 148, 179.  
 —, parchmentizing, 99.  
 —, pentosans in, determining, 365.  
 —, peptizable, 108.  
 —, peptization of, 108.  
 —, percentage of, in wood pulp, 280.  
 —, perchlor-, 2955.  
 —, peroxide of, 155.  
 —, phenol condensations of, 236.  
 —, phenylcarbamates of, 107.  
 —, phenylisocyanate of, 107.  
 —, phloroglucin and, 63.  
 —, physical characteristics of, re-producing, 662.  
 —, plastic of aluminates and, 284.  
 —, plasticity of, 519.  
 —, plastics of viscose and, 335.  
 —, plastics of zinc chloride and, 335.  
 —, polariscopic appearance of, 1759.  
 —, polarization of, 146.  
 —, polymerizing, 567.  
 —, powdered, manufacture of, 240.  
 —, precipitating barium hydroxide by, 36.  
 —, preparation of, for nitration, 30, 55, 619.  
 —, —, producing from esparto, 327.  
 —, production of, 664.  
 —, properties of, 38, 39.  
 —, propionic acid from, 45.  
 —, protecting, 638.  
 —, protocatechuic acid and, 63.  
 —, pulped, hygroscopicity of, 515.  
 —, pulping, 2087.  
 —, pure, determining, 373.  
 —, —, preparation of, 26.  
 —, purification, Beltzer method, 27.  
 —, —, Daniel and Benoist method, 28.  
 —, —, Girard method, 28.  
 —, —, Kitsee method, 28.  
 —, —, Rinman method, 27.  
 —, —, Whitney method, 27.  
 —, —, Zellstofffabrik method, 27.  
 —, purifying, alum for, 564.  
 —, —, aluminium sulfate for, 564.  
 —, —, electrolytically, 331.  
 —, —, Kellner process, 563.  
 —, pyrocatechin and, 63.  
 —, pyrogallol and, 63.  
 —, quantitative estimation of, 357.  
 —, —, radium on, 61.

- Cellulose, reactions, 14, 15.  
 —, reactivity of, 36.  
 —, reducing power of, determination, 265.  
 —, refraction of, 48, 61, 1760.  
 —, refraction colors of, 146.  
 —, regenerated, 2020, 3068.  
 —, regeneration of, 21.  
 —, reserve, 237.  
 —, resin in, estimating, 359.  
 —, resistance to heat, 54.  
 —, resorcin and, 63.  
 —, Ritter-Kellner, 318.  
 —, rotatory power of, 49.  
 —, rotatory power of solutions of, 47.  
 —, rot-proofing, 235.  
 —, saccharification of, 194.  
 —, salicylic acid and, 63.  
 —, separation of, 224, 374.  
 —, separation from cellulose nitrate, 1666.  
 —, separation from cellulose nitrate by pyridine, 1680.  
 —, separation from plant tissue, 13.  
 —, silica in, 239.  
 —, —, extracting, 26.  
 —, —, removal of, 332.  
 —, silicon compounds in, 239.  
 —, soluble, 503, 2257.  
 —, —, esterifying, 567.  
 —, —, *see also Cellulose nitrate*.  
 —, solubility, cuprammonium, 79.  
 —, —, increasing, 145.  
 —, —, in sulfuric acid, 1909.  
 —, solutions of, coagulation, ammonium sulfate for, 98.  
 —, —, —, ethyl alcohol for, 98.  
 —, —, —, methyl alcohol for, 98.  
 —, —, —, phosphoric acid for, 98.  
 —, —, —, sulfuric acid for, 98.  
 —, solution volume of, 16.  
 —, solvents for, 30, 66.  
 —, —, zinc chloride, 2988.  
 —, specific gravity of, 41, 518.  
 —, specific heat of, 39.  
 —, specific rotatory power of, 49.  
 —, specific volume of, 16.  
 —, specifications for, 318, 2207, 2258.  
 —, specifications, French, 2207.  
 —, spectrum of, 51.  
 —, stability of, 15.  
 —, stability towards heat, 41.  
 —, straw, nitration of, 319, 320.  
 —, strengthening, 234, 235.  
 —, structure, 14, 15, 18.  
 —, structureless, preparation, 117.  
 —, substitute for, 567.  
 —, sulfite, drying, changes due to, 636.  
 Cellulose, sulfite, nitration, 1805.  
 —, —, *see also Sulfite cellulose*.  
 —, sulfolysis of, 190.  
 —, sulfuric esters of, 37, 1718, 1719, 1907.  
 —, —, analysis, 1910.  
 —, sugar from, 45.  
 —, suitability for nitrating, 566.  
 —, tannin and, 63.  
 —, tannins on, 61.  
 —, tar in, 41.  
 —, teasing, 2207.  
 —, teaser feed, 2207.  
 —, tendering, 117.  
 —, thawing of, 5f8.  
 —, tin salts as solvents of, 67.  
 —, titanium salts as solvents of, 67.  
 —, toluene-*p*-sulfonic ester of, 1909.  
 —, treatment before esterifying, 567.  
 —, tubes of, soldering with, 335.  
 —, tungstic acid and, 63.  
 —, tunicate, hydrolysis of, 190.  
 —, ultramicroscopic behavior of, 51, 61.  
 —, ultramicroscopic structure of, 30.  
 —, ultraviolet light on, 51.  
 —, unaltered, determining in cellulose nitrate, 2295.  
 —, virgin, 2752.  
 —, viscosity, determining, 385.  
 —, —, falling sphere method, 549.  
 —, viscosity of, reducing, 541.  
 —, viscosity solutions of, 46.  
 —, viscosity value of, 547.  
 —, waste, specifications, 2207.  
 —, "water of constitution" in, 54.  
 —, wax in, estimation, 359.  
 —, weakening of, 114.  
 —, wood, action bleaching powder on, 612.  
 —, —, bleaching, 619.  
 —, —, —, determining degree of, 617.  
 —, —, hydrocellulose from, 600.  
 —, —, oxycellulose from, 600.  
 —, xanthated, 3067.  
 —, xanthating, 3063.  
 —, —, superficially, 3072.  
 —, *xanthates of, see Viscose*.  
 —, xylose from, on drying, 45.  
 —, yellowing of, 61.  
 —, zinc chloride in, removal of, 28.  
 —, zinc salts as solvents of, 67.  
 —,  $\alpha$ -Cellulose, 252, 351, 1734.  
 —,  $\beta$ -Cellulose, 248, 252, 351.  
 Cellulose, *see also Cotton, Wood, Lignin, Paper*.  
 Celluloses, 168.  
 Cellulose acetate, 167, 2381, 2987.  
 —, acetaldehyde as solvent of, 3029.

- Cellulose acetate, acetaldol as solvent of, 3029.
- , acetamide as solvent of, 3036.
  - , acetanilid as solvent of, 3038.
  - , acetic acid as solvent of, 2999.
  - , acetin as solvent of, 3034.
  - , acetin-formin as solvent of, 3033.
  - , acetin-diformin as solvent of, 3033.
  - , acetin-monoformin as solvent of, 3033.
  - , acetochlorhydrin as solvent of, 3033.
  - , acetochlorhydrin diacetate as solvent of, 3033.
  - , acetone-insoluble, transforming to acetone-soluble, 3007.
  - , acetone as solvent of, 3029.
  - , acetophenone as solvent of, 3030.
  - , acetylacetone as solvent of, 3030.
  - , acetyldicyclohexylamine as solvent of, 2546, 3041.
  - , acetylmethylanilid as solvent of, 3038.
  - , acetylmethylaniline as solvent of, 3040.
  - , acetylpalmitic esters and, 3054.
  - , acetylphenylnaphthylamine as solvent of, 3040.
  - , acridine as solvent of, 3040.
  - , action light rays on, preventing, 1762.
  - , action polarized light on, 1760.
  - , airplane use of, 3047.
  - , airplane wing lacquer of, 3048.
  - , alcohol-soluble, 150.
  - , alcohol-soluble, manufacture of, 3025.
  - , aldehydes as solvent of, 3029.
  - , amidophenol, as solvent of, 3027.
  - , amyl alcohol, as solvent of, 3026.
  - , amyl acetate as solvent of, 3032.
  - , *iso*-amyl citrate as solvent of, 3036.
  - , amyl lactate as solvent of, 3036.
  - , amyl oxalate as solvent of, 3036.
  - , *iso*-amyl tartrate as solvent of, 3036.
  - , amyliendiethyl ether as solvent of, 3040.
  - , analysis, 3049.
  - , anilids as solvent of, 3039.
  - , aniline as solvent of, 3007.
  - , aniline resinate as solvent of, 3035.
  - , anisol as solvent of, 3043.
  - , antimony (ous) chloride as solvent of, 3046.
  - , applications, 3041.
- Cellulose acetate, artificial filaments of, 3055.
- , benzene as solvent of, 3007.
  - , benzhydrol as solvent of, 3028.
  - , benzidin as solvent of, 3040.
  - , benzonaphthol as solvent of, 3035.
  - , benzyl acetate as solvent of, 3034.
  - , benzyl alcohol, as solvent of, 3026.
  - , benzyl chloride as solvent of, 3043.
  - , benzyldihydrocarvone as solvent of, 3030.
  - , benzyldiene acetoacetic ester as solvent of, 3035.
  - , bergamot oil as solvent of, 3034.
  - , bristles of, 2713.
  - , *iso*-butyl citrate as solvent of, 3036.
  - , *n*-butyl citrate as solvent of, 3036.
  - , butyl lactate as solvent of, 3036.
  - , butyl oxalate as solvent of, 3036.
  - , *n*-butyl tartrate as solvent of, 3036.
  - , camphor as solvent of, 3030, 3032, 3039, 3041, 3042.
  - , castor oil, acetated, as solvent of, 3036.
  - , cements of, 3060.
  - , chloracetone as solvent of, 3040.
  - , chloral alcoholate as solvent of, 3026, 3029.
  - , chloral hydrate as solvent of, 3029.
  - , chloral-phenol as solvent of, 3029.
  - , chlorbenzyl alcohol, as solvent of, 3026.
  - , coating X-ray tubes with, 2908.
  - , coating yarn with, 3053.
  - , collodion, 3060.
  - , creols as solvent of, 3027.
  - , cresyl acetate as solvent of, 3035.
  - , *m*-cresyl butyrate as solvent of, 3035.
  - , cresyl ether as solvent of, 3033.
  - , *m*-cresyl *iso*-valerate as solvent of, 3035.
  - , cresylic acid as solvent of, 3032.
  - , cumarone as solvent of, 3031.
  - , cyclohexanol as solvent of, 3027.
  - , cyclohexanone as solvent of, 3027.
  - , cyclohexanone-benzene, as solvent of, 3028.
  - , cyclopentanol, as solvent of, 3027.
  - , dental uses of, 3057.
  - , diacetin as solvent of, 3033.
  - , diapsidin as solvent of, 3040.
  - , dibutyl oxalate as solvent of, 3032.

- Cellulose acetate, dichloracetone as solvent of, 3030.
- , dichlorethylene as solvent of, 3025.
  - , dichlorhydrin as solvent of, 3034, 3039.
  - , dicrosyglyceryl ether as solvent of, 3033.
  - , dicyclohexyltoluenesulfonamide as solvent of, 3041.
  - , dielectric condenser of, 3050.
  - , diethylamine as solvent of, 3037.
  - , diethylbarbituric acid as solvent of, 3037.
  - , diethyldiphenyl urea as solvent of, 3037.
  - , diethylmalonyl urea as solvent of, 3037.
  - , diethyl tartrate as solvent of, 3036.
  - , diformin as solvent of, 3033.
  - , dihydroxydiphenyldimethylmethane as solvent of, 3031.
  - , dimethyl - cyclohexanone as solvent of, 3028.
  - , diminishing inflammability cellulose nitrate by, 1931.
  - , diphenyl ether as solvent of, 3028.
  - , diphenylglyceryl ether as solvent of, 3033.
  - , dope, specifications, British, 3050.
  - , dye absorption of, enhancing, 3055.
  - , dyeing, 3055.
  - , elastic masses of, 3051.
  - , elastol as solvent of, 3030.
  - , electric condensers of, 3050.
  - , epichlorhydrin as solvent of, 3033.
  - , epidiformin as solvent of, 3033.
  - , epiformin as solvent of, 3033.
  - , ethyl acetate soluble, 3044.
  - , ethyl acetate as solvent of, 3033.
  - , ethyl acetoacetate as solvent of, 3032.
  - , ethyl benzoate as solvent of, 3035.
  - , ethyl chloracetate as solvent of, 3034.
  - , ethyl chlorstearate as solvent of, 3035.
  - , ethyl glycerol-chlorhydrin as solvent of, 3034.
  - , ethyl lactate as solvent of, 3035, 3036, 3038.
  - , ethyl oxalate as solvent of, 3036.
  - , ethyl palmitate and, 3054.
  - , ethylphenyl ether as solvent of, 3028.
  - , ethyl phthalate as solvent of, 3035, 3043.
- Cellulose acetate, ethyl propionate as solvent of, 3032.
- , ethyl tartrate as solvent of, 3035.
  - , *p*-ethyltoluenesulfonamide as solvent of, 3039.
  - , ethyl valerate as solvent of, 3036.
  - , ethylene chlorhydrin as solvent of, 3034.
  - , ethylidene-acetone as solvent of, 3030.
  - , ethylidene diacetate as solvent of, 3034.
  - , (tetra), existence of, 21.
  - , fibrous, 349.
  - , manufacture of, 3011, 3012, 3046.
  - , filaments of, 3052.
  - , films, 3048.
  - , —, photo, 3050.
  - , fluorescence of, 52.
  - , formaldehyde-shellac as solvent of, 3029.
  - , formic acid as solvent of, 3031.
  - , formin as solvent of, 3033.
  - , furfural as solvent of, 3029.
  - , fusel oil as solvent of, 3030.
  - , gilding lace with, 3056.
  - , glycerol as solvent of, 3026.
  - , glyceryl benzoate as solvent of, 3034.
  - , glyceryl cinnamate as solvent of, 3035.
  - , glyceryl formate as solvent of, 3033.
  - , glyceryl oxalate as solvent of, 3033.
  - , glyceryl phthalate as solvent of, 3034.
  - , glyceryl phthalonate as solvent of, 3034.
  - , glyceryl salicylate as solvent of, 3034.
  - , glycol benzoate as solvent of, 3034.
  - , glycol cinnamate as solvent of, 3035.
  - , granular, manufacture of, 3013.
  - , guaiacol as solvent of, 3029.
  - , guanidine as solvent of, 3036.
  - , gutta-percha substitute from, 3049.
  - , hides coated with, 2618.
  - , historical, 2987.
  - , hydrolysis of, 130.
  - , —, sodium carbonate for, 3008.
  - , hydrolyzed, 130.
  - , hydrolyzing, 3014.
  - , hydroxybenzyl alcohol, as solvent of, 3026.

- Cellulose acetate, incombustible, boric acid for, 3057.  
 —, indene as solvent of, 3031.  
 —, insulating wire with, 3058.  
 —, iodohydrin diacetate as solvent of, 3033.  
 —, isoprene as solvent of, 3034.  
 —, lacquers of, 3046, 3061.  
 —, —, airplane wing application, 3048.  
 —, —, toluene-*o*-monoethyl sulfonamide for, 2609.  
 —, lacquering lace with, 3056.  
 —, lactic acid as solvent of, 3031.  
 —, manufacture of, 3005.  
 —, —, acetic anhydride vapor for, 3012.  
 —, —, alcohol-soluble, 3025.  
 —, —, alkylamine sulfuric salts as catalyst in, 3010.  
 —, —, ammonium bisulfate as catalyst in, 3009.  
 —, —, ammonium nitrate in, 3009.  
 —, —, aniline bisulfate as catalyst in, 3010.  
 —, —, aniline sulfate as catalyst in, 3010.  
 —, —, benzene sulfinic acid as catalyst in, 3009, 3011.  
 —, —, catalysts for, 3008.  
 —, —, copper salts, as catalyst in, 3010.  
 —, —, dimethyl sulfate, as catalyst in, 3009.  
 —, —, ethyl sulfuric acid, as catalyst in, 3009.  
 —, —, fibrous, 3011, 3012, 3046.  
 —, —, granular, 3012.  
 —, —, iron sulfate, as catalyst in, 3010.  
 —, —, lead chamber crystals as catalyst in, 3008.  
 —, manol as solvent of, 3040.  
 —, manufacture of methylamine bisulfate as catalyst in, 3010.  
 —, —, methylamine sulfate, as catalyst in, 3010.  
 —, —, methylene sulfate, as catalyst in, 3012.  
 —, —, monochloroacetic acid, as catalyst in, 3011.  
 —, —, nitric acid, as catalyst in, 3009.  
 —, —, nitrosulfuric acid, as catalyst in, 3010.  
 —, —, phenol sulfinic acid, as catalyst in, 3009.  
 —, —, phosphorus chloride as catalyst in, 3011.  
 Cellulose acetate, manufacture, pyridine sulfate, as catalyst, 3010.  
 —, —, pyrosulfuryl chloride as catalyst in, 3011.  
 —, —, raw materials for, 2992.  
 —, —, ripening, 3014.  
 —, —, sodium ethylsulfate, as catalyst in, 3010.  
 —, —, sulfacetic acid, as catalyst in, 3011.  
 —, —, sulfinic acid as catalyst in, 3009.  
 —, —, sulfonic acid, as catalyst in, 3009.  
 —, —, sulfuric acid, as catalyst in, 3008.  
 —, —, sulfur chloride as catalyst in, 3011.  
 —, —, sulfuric acid, as catalyst in, 3008.  
 —, —, sulfur trioxide in, 3009.  
 —, —, toluidine sulfate, as catalyst in, 3010.  
 —, —, trichloroacetic acid as catalyst in, 3011.  
 —, —, trioxymethylene as catalyst in, 3012.  
 —, mercerized finish of, 232.  
 —, methyl acetate as solvent of, 3032, 3034, 3039.  
 —, methyl acetoacetate as solvent of, 3032.  
 —, methylacetone as solvent of, 3031.  
 —, methyl alcohol as solvent of, 3025.  
 —, methylamine as solvent of, 3037.  
 —, methyl benzoate as solvent of, 3035.  
 —, methylbenzoyltrichloroaniline as solvent of, 3038.  
 —, methylbenzylchloroaniline as solvent of, 3038.  
 —, methyl chloroacetate as solvent of, 3034.  
 —, methylcyclohexanone as solvent of, 3028.  
 —, methyl formate as solvent of, 3034.  
 —, methyl glycerol-chlorohydrin as solvent of, 3034.  
 —, methyl lactate as solvent of, 3036.  
 —, methyl myristate as solvent of, 3036.  
 —, methyl oxalate as solvent of, 3036.  
 —, methylphenyl ether as solvent of, 3028.  
 —, methyl phthalate as solvent of, 3036, 3043.



- Cellulose acetate, methyl-*p*-toluylene-diamine as solvent of, 3040.
- , methylene chlorhydrin as solvent of, 3034.
  - , mica and, 3054.
  - , modifying, 3014.
  - , monoacetin as solvent of, 3033.
  - , monoacetylaniline, as solvent of, 3026.
  - , monochlorhydrin as solvent of, 3033.
  - , monochlorhydrin diacetate as solvent of, 3033.
  - , monochlorhydrin monoacetate as solvent of, 3033.
  - , monochloronaphthalene as solvent of, 3032.
  - , monoformin as solvent of, 3033.
  - , naphthalene, as solvent of, 3028.
  - , —, chlorinated, as solvent of, 3032.
  - ,  $\beta$ -naphthol benzoate as solvent of, 3035.
  - , naphthols, as solvent of, 3027.
  - , naphthyl acetate as solvent of, 3036.
  - ,  $\beta$ -naphthylamine as solvent of, 3040.
  - ,  $\beta$ -naphthylamine dihydrocarvone as solvent of, 3040.
  - , naphthyl ether, as solvent of, 3028, 3033.
  - , naphthyl-magnesium halogen compounds as solvent of, 3030.
  - ,  $\beta$ -naphthyl phthalate as solvent of, 3043.
  - , nitraniline as solvent of, 3038.
  - , nitrating, 3020.
  - , nitroformin as solvent of, 3033.
  - , nitronaphthalin as solvent of, 3040.
  - , nitrotoluene as solvent of, 3040.
  - , *o*-nitrotoluene as solvent of, 3040.
  - , non-shattering glass of, 3052.
  - , oil of bergamot as solvent of, 3034.
  - , oleic acid, as solvent of, 3031, 3035.
  - , oxalin as solvent of, 3033.
  - , paper for electric condensers, 3060.
  - , pearls from, 3060.
  - , pentachloroethane, as solvent of, 3025, 3030.
  - , phenol, as solvent of, 3027.
  - , phenol-albumen as solvent of, 3027.
  - , phenol-casein as solvent of, 3027.
  - , phenol-chloral as solvent of, 3029.
- Cellulose acetate, phenol sulfonate as solvent of, 3036.
- , phenyl acetate as solvent of, 3034.
  - , phenyl ether as solvent of, 3033.
  - , phenyl glycidate as solvent of, 3033.
  - , phenyl salicylate as solvent of, 3032, 3039.
  - , phonograph records of, 2734.
  - , photo films of, 3050.
  - , phthalic esters as solvent of, 3043.
  - , phthalimide as solvent of, 3040.
  - , plastifiers, 3022.
  - , precipitating, acridine for, 3040.
  - , —, amyl acetate for, 2493.
  - , —, carbon tetrachloride for, 3042.
  - , —, ethyl alcohol for, 3024.
  - , —, pyridine for, 3040.
  - , —, quinoline for, 3040.
  - , preventing moisture obscuring glass by, 3052.
  - , properties, 3022.
  - , propyl benzoate as solvent of, 3035.
  - , propyl chlorstearate as solvent of, 3033.
  - , propyl myristate as solvent of, 3033.
  - , propyl palmitate as solvent of, 3033.
  - , propyl stearate as solvent of, 3033.
  - , protecting cylinders with, 2991.
  - , purifying, electric current for, 3022.
  - , pyridine as solvent of, 3040.
  - , pyrocatechin diethyl ether as solvent of, 3029.
  - , pyrogallol triacetate as solvent of, 3034.
  - , quinoline as solvent of, 3040.
  - , recovery of, 3022.
  - , reducing inflammability of cellulose nitrate by, 1790.
  - , reflectors, 3050.
  - , resorcinol, as solvent of, 3026.
  - , resorcinol diacetate as solvent of, 3034.
  - , resorcinol monoacetate as solvent of, 3034.
  - , ripening of, 37, 3014.
  - , saligenin as solvent of, 3028.
  - , saponification, *see also* Cellulose acetate, hydrakon.
  - , sheets of, 3054.
  - , skins coated with, 2618.
  - , softening, amidophenol for, 3042.
  - , —, naphthol for, 3042.
  - , —, nitrophenol for, 3042.

Cellulose acetate, softening, nitro-phenol salicylate for, 3042.

—, —, phenol for, 3042.

—, —, pyrogallol for, 3042.

—, —, resorcin for, 3042.

—, —, saligenin for, 3042.

—, solubility, modifying, 3014, 3061.

—, solvent for, 167, 3022.

• —, solvent, acetaldehyde as, 3029.

—, —, acetaldol as, 3029.

—, —, acetamide as, 3036.

—, —, acetanilid as, 3038.

—, —, acetin as, 3034. • •

—, —, acetin-diformin as, 3036.

—, —, acetin-formin as, 3033.

—, —, acetin-monoformin as, 3033.

—, —, acetochlorhydrin as, 3033.

—, —, acetochlorhydrin diacetate as, 3033.

—, —, acetone as, 3029.

—, —, acetophenone as, 3030.

—, —, acetylacetone as, 3030.

—, —, acetyldicyclohexylamine as, 2546, 2546, 3041.

—, —, acetylmethylanilid as, 3038.

—, —, acetylmethylaniline as, 3040.

—, —, acetylphenyl-naphthylamine as, 3040.

—, —, acridine as, 3040.

—, —, aldehydes as, 3029.

—, —, amidophenol as, 3027.

—, —, amyl acetate as, 3032.

—, —, amyl alcohol as, 3026.

—, —, *iso*-amyl citrate as, 3036.

—, —, amyl lactate as, 3036.

—, —, amyl oxalate as, 3036.

—, —, *iso*-amyl tartrate as, 3036.

• —, amyli-diethyl ether as, 3040.

—, —, anilids as, 3039.

—, —, aniline resinate as, 3035.

—, —, benzhydrol as, 3028.

—, —, benzidin as, 3040.

—, —, benzonaphthol as, 3035. •

—, —, benzyl acetate as, 3034.

—, —, benzylidene acetoacetic ester as, 3035.

—, —, benzyl alcohol as, 3026.

—, —, benzyl-dihydrocarvone as, 3030.

—, —, bergamot oil as, 3034.

—, —, *iso*-butyl citrate as, 3036.

—, —, *n*-butyl citrate as, 3036.

—, —, butyl lactate as, 3036. •

—, —, butyl oxalate as, 3036.

—, —, *iso*-butyl tartrate as, 3036.

—, —, *n*-butyl tartrate as, 3036.

—, —, camphor as, 3030, 3032, 3039.

• —, —, castor oil, acetated as, 3036.

• —, —, chloracetone as, 3040.

Cellulose acetate, solvent, chloral alcoholate as, 3026, 3029.

—, —, chloral hydrate as, 3029.

—, —, chloral-phenol as, 3029.

—, —, chlorbenzyl alcohol as, 3026

—, —, cresols as, 3027.

—, —, cresyl acetate as, 3035.

—, —, *m*-cresyl butyrate as, 3035.

—, —, cresyl ether as, 3033.

—, —, *m*-cresyl *iso*-valerate as, 3033.

—, —, cresylic acid as, 3032. •

—, —, cumarone as, 3031.

—, —, cyclohexanol as, 3027.

—, —, cyclohexanone as, 3027.

—, —, cyclohexanone-benzene as, 3028.

—, —, cyclopentanol as, 3027.

—, —, diacetin as, 3033.

—, —, dianisidin as, 3040.

—, —, dibutyl oxalate as, 3032.

—, —, dichloracetone as, 3030.

—, —, dichlorethylene as, 3025.

—, —, dichlorhydrin as, 3034, 3031

—, —, dicresylglyceryl ether as, 3033

—, —, dicyclohexyltoluenesulfonamide as, 3041.

—, —, diethylamine as, 3037.

—, —, diethylbarbituric acid as, 303

—, —, diethyldiphenyl urea as, 303

—, —, diethylmalonyl urea as, 303

—, —, diethyl tartrate as, 3036.

• —, diformin as, 3033.

—, —, dihydroxydiphenyldimethylmethane as, 3031.

—, —, dimethyl-cyclohexanone as, 3028.

—, —, diphenyl ether as, 3028.

—, —, diphenylglyceryl ether as, 3033.

—, —, elastol as, 3039.

—, —, epichlorhydrin as, 3033.

—, —, epidiformin as, 3033.

—, —, epiformin as, 3033.

—, —, ethyl acetate as, 3033.

—, —, ethyl acetoacetate as, 3032.

—, —, ethyl benzoate as, 3035.

—, —, ethyl chloracetate as, 3034.

—, —, ethyl chlorstearate as, 3035.

—, —, ethyl glycerol-chlorhydrin as, 3034.

—, —, ethyl lactate as, 3035, 3036 3038.

—, —, ethyl oxalate as, 3036. •

—, —, ethylphenyl ether as, 3028.

—, —, ethyl phthalate as, 3035.

—, —, ethyl propionate as, 3032.

—, —, ethyl tartrate as, 3035.

—, —, *p*-ethyltoluenesulfonamide as, 3039.

- Cellulose acetate, solvent, ethyl valerianate as, 3036. •
- , —, ethylene chlorhydrin as, 3034.
- , —, ethylideneacetone as, 3030.
- , —, ethylidene diacetate as, 3036.
- , —, formaldehyde-shellac as, 3029.
- , —, formic acid as, 3031.
- , —, formin as, 3033.
- , —, furfural as, 3029.
- , —, fusel oil as, 3039.
- , —, glycerol as, 3026.
- , —, glyceryl benzoate as, 3034.
- , —, glyceryl cinnamate as, 3035.
- , —, glyceryl formate as, 3033.
- , —, glyceryl oxalate as, 3033.
- , —, glyceryl phthalate as, 3034.
- , —, glyceryl phthalonate as, 3034.
- , —, glyceryl salicylate as, 3034.
- , —, glycol benzoate as, 3034.
- , —, glycol cinnamate as, 3035.
- , —, guaiacol as, 3029.
- , —, guanidine as, 3036.
- , —, hydroxybenzyl alcohol as, 3026. •
- , —, indene as, 3031.
- , —, iodohydrin diacetate as, 3033.
- , —, isoprene as, 3034.
- , —, lactic acid as, 3031, 3053.
- , —, manol as, 3040.
- , —, methylamine as, 3037.
- , —, methyl acetate as, 3032, 3034, 3039.
- , —, methyl acetoacetate as, 3032.
- , —, methylacetone as, 3031.
- , —, methyl alcohol as, 3025.
- , —, methyl benzoate as, 3035.
- , —, methylbenzoyltrichloraniline as, 3038.
- , —, methylbenzylchloraniline as, 3038.
- , —, methyl chloracetate as, 3034.
- , —, methyl-cyclohexanone as, 3028.
- , —, methyl formate as, 3034.
- , —, methyl glycerol-chlorhydrin as, 3034.
- , —, methyl lactate as, 3036.
- , —, methyl myristate as, 3036.
- , —, methyl oxalate as, 3036.
- , —, methylphenyl ether as, 3028.
- , —, methyl phthalate as, 3036.
- , —, methyl-*o*-toluylenediamine as, 3040.
- , —, methylenechlorhydrin as, 3034.
- , —, monoacetin as, 3033.
- , —, monoacetylmethylamine as, 3026.
- , —, monochlorhydrin as, 3033.
- Cellulose acetate, solvent, monochlorhydrin diacetate as, 3033.
- , —, monochlorhydrin monoacetate as, 3033. •
- , —, monochloronaphthalene as, 3032.
- , —, monoformin as, 3033.
- , —, naphthalene as, 3028.
- , —, naphthalene, chlorinated as, 3032.
- , —, naphthol as, 3027.
- , —, *b*-naphthol as, 3035.
- , —, *b*-naphthylamine as, 3040.
- , •, *b*-naphthylaminodihydrocarvone as, 3040.
- , —, naphthyl acetate as, 3036.
- , —, naphthyl ether as, 3028, 3033.
- , —, naphthyl-magnesium halogen compounds as, 3030.
- , —, nitraniline as, 3038.
- , —, nitroformin as, 3033.
- , —, nitronaphthalin as, 3040.
- , —, nitrotoluene as, 3040.
- , —, *o*-nitrotoluene as, 3040.
- , —, oil of bergamot as, 3034.
- , —, oleic acid as, 3031, 3035.
- , —, ovalin as, 3033.
- , —, pentachlorethane as, 3025, 3030. •
- , —, phenol as, 3027.
- , —, phenol-albumen as, 3027.
- , —, phenol-casein as, 3027.
- , —, phenol-chloral as, 3029.
- , —, phenol sulfonate as, 3036.
- , —, phenyl acetate as, 3034.
- , —, phenyl ether as, 3033.
- , —, phenyl glycide as, 3033.
- , —, phenyl salicylate as, 3032, 3039.
- , —, phthalimide as, 3040.
- , —, propyl benzoate as, 3035.
- , —, propyl chlorstearate as, 3033.
- , —, propyl myristate as, 3033.
- , —, propyl palmitate as, 3033.
- , —, propyl stearate as, 3033.
- , —, pyridine as, 3040.
- , —, pyrocatechin diethyl ether as, 3029.
- , —, pyrogallol triacetate as, 3034.
- , —, quinoline as, 3040.
- , —, resorcinol as, 3026.
- , —, resorcinol diacetate as, 3034.
- , —, resorcinol monoacetate as, 3034. •
- , —, saligenin as, 3028.
- , —, stearic acid, chlorinated as, 3030, 3031. •
- , •, sulfonated fatty acids as, 3031.
- , —, tetrachlorethane as, 3029, 3032. •

- Cellulose acetate, solvent, tetrachloroethylacetanilid as, 3039.  
 —, —, thymol as, 3027.  
 —, —, toluene-monoethylsulfonamide as, 3039.  
 —, —, toluene-*p*-monoethylsulfonamide as, 3039.  
 —, —, *p*-toluenesulfamid as, 3040.  
 —, —, triacetin as, 3033, 3034.  
 —, —, trichloraniline as, 3038.  
 —, —, trichlorethylene as, 3039.  
 —, —, trichlormethylacetanilid as, 3038.  
 —, —, tricresyl phosphate as, 3032, 3034.  
 —, —, triformin as, 3033.  
 —, —, trinaphthyl phosphate as, 3032.  
 —, —, triphenyl borate as, 3032.  
 —, —, triphenyl phosphate as, 3032, 3039.  
 —, —, urea as, 3032, 3036.  
 —, —, veronal as, 3037.  
 —, —, xylene-monoethylsulfonamide as, 3039.  
 —, —, xylenemonomethylsulfonamide as, 3039.  
 —, —, specifications, British, 3050.  
*Cellulose acetate, suppl. see Cellulose acetate, plastic.*  
 —, splinterless glass of, 3052.  
 —, stannic chloride as solvent of, 3046.  
 —, stearic acid, chlorinated as solvent of, 3030, 3037.  
 —, sulfonated fatty acids as solvent of, 3031.  
 —, tetrachlorethane as solvent of, 3029, 3032.  
 —, tetrachlorethylacetanilid as solvent of, 3039.  
 —, textiles, waterproofing by, 3057.  
 —, thymol as solvent of, 3027.  
 —, tires impregnating with, 3050.  
 —, toluene-monomethylsulfonamide as solvent of, 3039.  
 —, *p*-toluenesulfamid as solvent of, 3040.  
 —, toluidine as solvent of, 3007.  
 —, triacetin as solvent of, 3033, 3034.  
 —, trichloraniline as solvent of, 3038.  
 —, trichlorethylene as solvent of, 3039.  
 —, trichlormethylacetanilid as solvent of, 3038.  
 —, tricresyl phosphate as solvent of, 3032, 3034.  
 —, triformin as solvent of, 3033.  
 Cellulose acetate, trinaphthyl phosphate as solvent of, 3032.  
 —, triphenyl borate as solvent of, 3032.  
 —, triphenyl phosphate as solvent of, 3032, 3039.  
 —, urea as solvent of, 3032, 3036.  
 —, varnish of, 3058.  
 —, veronal as solvent of, 3037.  
 —, viscosity, effect boric acid on, 1739.  
 —, —, effect citric acid on, 1739.  
 —, —, solutions of, 1739.  
 —, waterproofing collars with, 2708.  
 —, waterproofing linen with, 3057.  
 —, water-soluble, 150.  
 —, xylenemonoethylsulfonamide as solvent of, 3039.  
 —, xylenemonomethylsulfonamide as solvent of, 3039.  
 —, xylidene as solvent of, 3007.  
 —, yarn coated with, 3053.  
*Cellulose acetate, see also Cellulose mono-, di-, tri-acetate.*  
 Cellulose acetobenzoate, 1907.  
 Cellulose acetone, wood pulp for manufacture of, 323.  
 Cellulose acetonitrile, 1884, 2752, 3019.  
 Cellulose aceto-nitrate, denitrating, 2753, 3020.  
*Cellulose acetophenylate, see Cellulose phenylacetate.*  
 Cellulose acetosulfates, 349, 1718, 1908, 3021.  
 Cellulose acetosulfuric ester, 21.  
 Cellulose acetylsulfate, 21.  
 Cellulose aggregates, 335.  
 Cellulose esters, 7.  
 —, action light rays on, preventing, 1762.  
 Cellulose ester, heat of combustion, 1791.  
 —, solvents, 2382.  
 Cellulose benzoate, 21, 211, 222, 349, 3021.  
 Cellulose briquettes, 284.  
 Cellulose butyrate, 3018.  
*Cellulose butyrate, see Cellulose acetobutyrate.*  
 Cellulose carbamates, 107, 324.  
 Cellulose chloracetate, 3014.  
 Cellulose chlorpropionate, 3014.  
 Cellulose dextrans, 190, 238.  
 —, acetylated, 187.  
 Cellulose dinitrate, 1647, 1649, 1716.  
 Cellulose dynamite, 2972.  
*Cellulose eanthate, see Cellulose oenanthate.*

- Cellulose ethers, 38.  
 Cellulose filters, 334.  
 Cellulose formate, 2381, 3015.  
 —, acetic acid as solvent of, 2999.  
 —, amyl acetate as precipitant for, 2493.  
 —, formic acid as solvent of, 3017.  
 —, formula of, 23.  
 —, lactic acid, as solvent of, 3017.  
 —, manufacture of, 3002.  
 —, manufacture of, chlorosulfonic acid, as catalyst in, 3016.  
 —, ethylsulfuric acid as catalyst in, 3016.  
 —, phenolsulfonic acid as catalyst in, 3016.  
 —, sulfuric acid as catalyst in, 3015.  
 —, sulfuryl chloride as catalyst in, 3016.  
 —, zinc chloride as catalyst in, 3015.  
 —, phosphoric acid as solvent of, 3017.  
 —, plastics of, 3042.  
 —, solvents of, 3017.  
 —, utilization of, 3017.  
*Cellulose formate, see also Cellulose formylation.*  
 Cellulose hexanitrate, 1647, 1648.  
 Cellulose hydrates, 36, 213, 220, 1884.  
 —, absorption sodium hydroxide by, 349.  
 —, dentifrice of, 3080.  
 —, formation, 30.  
 —, formic acid as solvent, of 3015.  
 —, formylating, 3015.  
 Cellulose isocyanates, 107.  
 Cellulose liquors, sulfur dioxide from, 1086.  
*Cellulose monoformate, see also Cellulose formate.*  
 Cellulose mononitrate, 20, 1650, 1884.  
 Cellulose nitrate, 3019.  
 Cellulose nitrate, absorption bands of, 1762.  
 —, absorption of gases by, 1609.  
 —, absorption dry HCl by, 1699.  
 —, absorption of moisture by, 1753.  
 —, absorption sulfur dioxide by, 1699.  
 —, acaroid as solvent of, 2541.  
 —, accelerators, 2381.  
 —, acetalal as solvent of, 2542.  
 —, acetanilid as solvent of, 2544, 2546.  
 —, acet-*p*-anisidide as solvent of, 2546.  
 —, acetates in decomposition of, 1716.  
 Cellulose nitrate, acetating, 3020.  
 —, acetone in, removal, 2158.  
 —, acetylchlorhydrin as solvent of, 2543.  
 —, acet-*b*-naphthalid as solvent of, 2546.  
 —, acetochlorhydrate hepta-acetate as solvent of, 2549.  
 —, acetochlorhydrate mono-acetate as solvent of, 2549.  
 —, acetochlorhydrate octo-acetate as solvent of, 2549.  
 —, acetochlorhydrate tetra-acetate as solvent of, 2549.  
 —, acetoneglycerol as solvent of, 2543.  
 —, acet-*o*-toluidide as solvent of, 2546.  
 —, acetylid as solvent of, 2545.  
 —, acetylamidophenyl amyl carbonate as solvent of, 2546.  
 —, acetylamidophenyl ethyl carbonate as solvent of, 2546.  
 —, acetylamidophenyl isobutyl carbonate as solvent of, 2546.  
 —, acetylamidophenyl methyl carbonate as solvent of, 2546.  
 —, acetyldicyclohexylamine as solvent of, 2545, 2548.  
 —, acetylphenylamine as solvent of, 2553.  
 —, acetylethylamidophenyl amyl carbonate as solvent of, 2546.  
 —, acetylethylamidophenyl ethyl carbonate as solvent of, 2546.  
 —, acetylethylamidophenyl isobutyl carbonate as solvent of, 2546.  
 —, acetylethylamidophenyl methyl carbonate as solvent of, 2546.  
 —, acetylmethylamidophenyl amyl carbonate as solvent of, 2546.  
 —, acetylmethylamidophenyl ethyl carbonate as solvent of, 2546.  
 —, acetylmethylamidophenyl isobutyl carbonate as solvent of, 2546.  
 —, acetylmethylamidophenyl methyl carbonate as solvent of, 2546.  
 —, acetylmethylaniline as solvent of, 2545.  
 —, acetylphenyltolylamine as solvent of, 2553.  
 —, acetylphenylnaphthylamine as solvent of, 2553.  
 —, acid, conveying, 2060.  
 —, acid cellulose for saponification of, 124.  
 —, acidity, determining, 2298.  
 —, acidity in, determining, Ange" method, 2299.

- Cellulose nitrate, acidity in, determining, U. S. Ordnance method, 2298.
- , acid storage tanks, 2240.
  - , acid, transporting, 2061.
  - , acid-proof fabrics of, 1892.
  - , aconitine and, 2794.
  - , action ammonia on, 1899.
  - , action denitrifying bacteria on, 2110.
  - , action fungi on, 1802.
  - , action light rays on, preventing, 1762.
  - , action on metal plates, 1636.
  - , action polarized light on, 1757.
  - , action phosphorous pentachloride on, 1643.
  - , action Roentgen rays on, 1762.
  - , action sodium hydroxide on, 1932.
  - , action sunlight on, 2368.
  - , action ultraviolet light on, 1714.
  - , action ultra-violet rays on, 2368, 2369.
  - , action water on, 1931, 1932.
  - , activity enzymes in presence of, 1770.
  - , aesculin as preservative of, 2846.
  - , alcohol-ether on, solvent action, 2291.
  - , alcohol-insoluble, 1663.
  - , alcoholic displacement dehydration, 2140.
  - , alcoholic extract from, 2144.
  - , alcoholizing, 2127.
  - , alcohol-soluble, 1599, 1728.
  - , alcohol-soluble portion, 1663.
  - , —, composition, 1663, 2144.
  - , aldols as solvent of, 2542.
  - , alkali on, effect of, 1614.
  - , alkaline decomposition of, 1600.
  - , alkalinity in, determining, 2299.
  - , alkalized, 1614.
  - , alkaloid acetates as preservative of, 2846.
  - , alkaloids as preservative of, 2846.
  - , alkanet root as preservative of, 2847.
  - , aloes as preservative of, 2847.
  - , amidobenzenesulfoazodiphenylamine as solvent of, 2553.
  - , ammoniac as preservative of, 2847.
  - , ammoniated albumen as preservative of, 2847.
  - , amorphous, 1895, 2802.
  - , —, manufacture of, 171, 1951.
  - , amyl acetylsalicylate as solvent of, 2537.
  - , amyl benzoate as solvent of, 2537.
  - , amyl carbamate as solvent of, 2536.
  - Cellulose nitrate, amyl carbanilate as solvent of, 2537.
  - , amyl carbonate, as solvent of, 2536.
  - , amyl dicresyl phosphate as solvent of, 2541.
  - , amyl dinaphthyl phosphate as solvent of, 2541.
  - , amyl diphenyl phosphate as solvent of, 2541.
  - , amyl lactate as solvent of, 2543.
  - , amyl oxalate, as solvent of, 2540.
  - , amyl phthalate, as solvent of, 2546.
  - , amyl tartrate as solvent of, 2536.
  - , analysis, manonitrometric, 2313.
  - , —, spectroscopic method 2305.
  - , aniline as solvent of, 2552.
  - , aniline trichloride as solvent of, 2539.
  - , anisol as solvent of, 2543.
  - , antimony (ic) chloride for coloring, 1896.
  - , antimony (ic) sulfide for coloring, 1896.
  - , antipyrin salicylate as solvent of, 2545.
  - , antiseptics with, 2792.
  - , appearance of, 1697.
  - , apomorphine as preservative of, 2846.
  - , apomorphine acetate as preservative of, 2846.
  - , aquadag as solvent of, 2552.
  - , aristol and, 2792.
  - , arsenous acid for coloring, 1896.
  - , arsenous sulfide for coloring, 1896.
  - , artificial bast of, 2644.
  - , artificial braid of, 2642, 2644.
  - , artificial chamois containing, 2609.
  - , artificial corks of, 2617.
  - , artificial cork containing, 2599.
  - , artificial filaments from, 2621.
  - , artificial flower, manufacture with, 2574.
  - , artificial fuel of, 1889.
  - , artificial hemp of, 2644.
  - , artificial horse hair of, 2642, 2655.
  - , artificial leather, 2381, 2599, 2655.
  - , artificial leather, upholstery of, 2612.
  - , artificial lynx hair of, 2642.
  - , artificial stone of, 2655.
  - , artificial straw of, 2642, 2644.
  - , artificial teeth varnish of, 2574.
  - , artificial tulle of, 2642.

- Cellulose nitrate, ash in, 560, 1607.  
 —, —, determining, 2296, 2369.  
 —, —, —, Schjerning method, 2297.  
 —, —, —, Schrimpf method, 2298.  
 —, —, testing, 2264.  
 —, astringent of cresosote and, 2791.  
 —, astringent of phenol and, 2791.  
 —, autocatalysis, 2364.  
 —, azobenzene as solvent of, 2544.  
 —, bags of, 1773.  
 —, ballistic effect, increasing, 1858.  
 —, ballistic properties, 1585.  
 —, ballistics of, 1586, 1793.  
 —, ballistics of moist, 1794.  
 —, ballistics, varying, 1605.  
 —, balloons of, 1887.  
 —, barium nitrate explosive with, 1625.  
 —, battery separators of, 1608.  
 —, beaten, settling, 2095.  
 —, beating, 2083.  
 —, beech tar creosote lacquer containing, 2593.  
 —, belladonna with, 2794.  
 —, benzanilid as solvent of, 2545.  
 —, benzine and, 2574.  
 —, benzene bromide as solvent of, 2540.  
 —, benzene chloride as solvent of, 2540.  
 —, benzene nitrobromide as solvent of, 2540.  
 —, benzene nitrochloride as solvent of, 2540.  
 —, benzene benzylnitrochloride as solvent of, 2540.  
 —, benzin as solvent of, 2543.  
 —, benzoin as lacquer with, 2593.  
 —, benzonaphthol as solvent of, 2538.  
 —, benzosal as solvent of, 2540.  
 —, benzo-trichloride as solvent of, 2539.  
 —, benzoylguaiacol as solvent of, 2549.  
 —, benzyl-dihydrocarvone as solvent of, 2549.  
 —, benzylidene diacetate as solvent of, 2538.  
 —, benzyl acetate as solvent of, 2537.  
 —, benzyl acetylsalicylate as solvent of, 2537.  
 —, benzyl alcohol as solvent of, 2537.  
 —, benzyl benzoate as solvent of, 2537.  
 —, benzyl pentachloranilid as solvent of, 2545.  
 Cellulose nitrate, benzyl propionate as solvent of, 2538.  
 —, benzyl tetrachloranilid as solvent of, 2545.  
 —, benzyltrichloranilid as solvent of, 2545.  
 —, benzylidene glycerol as solvent of, 2543.  
 —, betaine chlorate as solvent of, 2546.  
 —, betaine chromate as solvent of, 2546.  
 —, betaine nitrate as solvent of, 2546.  
 —, betaine permanganate as solvent of, 2546.  
 —, bichromated, 1911.  
 —, bichromated honey with, 2906.  
 —, biguanidine nitrate as solvent of, 2552.  
 —, blasting, 1735.  
 —, blasting cartridge containing, 1617.  
 —, blasting fuse of, 1850, 2981.  
 —, blasting preparation containing, 1617.  
 —, bleached, stability of, 613.  
 —, bleaching, 1680, 1698, 2011, 2069.  
 —, —, hydrogen dioxide for, 2071.  
 —, —, Mowbray process, 2070.  
 —, —, perborates for, 2071.  
 —, —, Spill's method, 2069.  
 —, —, sodium peroxide for, 2071.  
 —, —, sulfurous acid for, 2063.  
 —, blending, 1692, 1724, 2102, 2936.  
 —, —, International Powder Co. method, 2111.  
 —, —, Liedbeck process, 2111.  
 —, —, Maxim method, 2112.  
 —, —, Nobel-Liedbeck method, 2111.  
 —, blocks, boring, 2188.  
 —, —, drilling, 2188.  
 —, —, drying, 2150.  
 —, —, manufacture of, Plösch press, 2171.  
 —, —, —, Musker process, 2174.  
 —, —, milling, 2188.  
 —, —, rasping, 2188.  
 —, —, sawing, 2188.  
 —, —, scraping, 2188.  
 —, —, turning, 2188.  
 Cellulose nitrate blocks, *see also Cellulose nitrate, compressed*.  
 —, boric acid and, 2574.  
 —, borneol as solvent of, 2549.  
 —, borneol dibromodihydrocinnamic acid as solvent of, 2548.  
 —, borneol ethoxyacetate as solvent of, 2539.  
 —, borneol ethoxychloracetate as solvent of, 2539.

- Cellulose nitrate, borneol methoxyacetate as solvent of, 2539.  
 —, borneol methorychloracetate as solvent of, 2539.  
 —, bornyl acetate as solvent of, 2549.  
 —, brisance of, 1931.  
 —, British, testing, 2268.  
 —, brocadeing velvet with, 2616.  
 —, bromoethyl cinnamate as solvent of, 2537.  
 —, bromocoll with, 2794.  
 —, bronzing liquids, 2585.  
 —, brush lacquers, 2585, 2592.  
 —, bullet of, 1639.  
 —, butyl acetate as solvent of, 2536.  
 —, butyl carbamate as solvent of, 2536.  
 —, butyl carbanilate as solvent of, 2537.  
 —, butyl carbonate as solvent of, 2536.  
 —, butyl oleate as solvent of, 2536.  
 —, butyl palmitate as solvent of, 2536.  
 —, butyl stearate as solvent of, 2536.  
 —, butyl tartrate solvent of, 2536.  
 —, cable insulating by, 2598.  
 —, caffeine acetate as preservative of, 2846.  
 —, —, removal, 2325.  
 —, cadmium chloride for coloring, 1896.  
 —, cadmium sulfide for coloring, 1896.  
 —, calcium carbonate in, determining, 2299.  
 —, cantharides with, 2793.  
 —, cantharidin with, 2793.  
 —, caoutchouc substitute of, 2599.  
 —, capsicum with, 2793.  
 —, caramel as preservative of, 2347.  
 —, carmine for coloring, 1896.  
 —, cartridges of, 1590, 1591, 1598, 2080.  
 —, cartridges, specifications for, 2186.  
 —, casein as solvent of, 2542.  
 —, cassius for coloring, 1898.  
 —, castor oil as lacquer with, 2593.  
 —, casts of fossil ferns with, 2784.  
 —, celluloid, stabilizing, 2094.  
 —, cement of, 2577.  
 —, centralite I as solvent of, 2552.  
 —, centralite II as solvent of, 2552.  
 —, charging grenades with, 2154, 2186.  
 —, cheaper, manufacture of, 2032.  
 —, chemistry of, 1840.  
 —, —, Pest work, 1674.  
 Cellulose nitrate, China wood oil lacquer with, 2593.  
 —, chloracetanilid as solvent of, 2539.  
 —, chloral as solvent of, 2543.  
 —, chloral hydrate as solvent of, 2384.  
 —, chlorated, 1911.  
 —, chloroethyl cinnamate as solvent of, 2537.  
 —, chlorhydrins as solvent of, 2543.  
 —, chlorinating, 1780.  
 —, chloronaphthyl acetate as solvent of, 2539.  
 —, chloroxypropyl cinnamate as solvent of, 2537.  
 —, chromic chloride for coloring, 1896.  
 —, chromic hydroxide for coloring, 1896.  
 —, chrysarobin and, 2792.  
 —, cinchonine as preservative of, 2846.  
 —, cinnamene as solvent of, 2536.  
 —, classes produced in U. S., 2250.  
 —, classification, 1691.  
 —, coating cables with, 2574.  
 —, coating cartridges with, 2610, 2981.  
 —, coating fabrics with, 2574.  
 —, coating feathers with, 2610.  
 —, coating leather with, 2618.  
 —, coating sounding tubes with, 2599.  
 —, coating thread with, 2599, 2655.  
 —, coating wire with, 2573.  
 —, coating wood with, 2574.  
 —, cocaine with, 2794.  
 —, cochineal, for coloring, 1896.  
 —, colloiding, 1632, 2127, 2246, 2249.  
 —, —, Abel method, 1605.  
 —, —, acetone for, 2250.  
 —, —, Borland process, 2252.  
 —, —, Delpech method, 2254.  
 —, —, Gentieu apparatus, 2254.  
 —, —, International Powder Co. process, 2252.  
 —, —, Kaiser method, 2252.  
 —, —, Kondratieff process, 2254.  
 —, —, Reid process, 2250.  
 —, —, Voswinkel process, 2252.  
 —, —, zinc chloride for, 2252.  
 —, colloidized, 1897.  
 —, colophony lacquer containing, 2592.  
 —, colophony as solvent of, 2541.  
 —, color of, 1688, 1765.  
 —, colored flames by, 1887.  
 —, coloring, 1893.  
 —, —, alkanet for, 2790.



- Cellulose nitrate, coloring, annato for, 2790.  
 —, —, benzoïn for, 2791.  
 —, —, dragon's blood for, 2790.  
 —, color sensitizing, 2873.  
 —, combining bitumens with, 2509.  
 —, combining gunpowder and, 1619.  
 —, combustion of, 1582.  
 —, combustion, Abel's investigations, 1605.  
 —, —, complete, 1797, 1798.  
 —, —, composition gas in, 1627.  
 —, —, gases of, 1796.  
 —, —, heat of, 1626, 1796.  
 —, —, heat units in, 1794.  
 —, —, potential energy in, 1800.  
 —, —, pressure in, 1796, 1800.  
 —, —, products of, 1794, 1796.  
 —, —, temperature of equilibrium, 1796.  
 —, —, temperature of explosion, 1800.  
 —, —, units of heat in, 1800.  
 —, —, volume permanent gas, 1626.  
 —, —, water produced in, 1627.  
 —, combustion ammonium nitrate and, 1627.  
 —, combustion potassium nitrate and, 1627, 1912.  
 —, commercial designations, 1692.  
 —, comminuting, 2093.  
 —, —, auxiliary refining engine for, 2094.  
*Cellulose nitrate compacting, see Cellulose nitrate, colloidizing, gelatinizing, indurating.*  
 —, complete combustion of, 1797, 1798.  
 —, compressed, 1621.  
 —, —, density, 2166.  
 —, —, highly, 2160.  
 —, —, Maxim's, 2164.  
 —, —, moisture in, 2162.  
 —, —, specific gravity of, 2166.  
 —, —, transportation of, 1929.  
 —, —, water in, 2162.  
*Cellulose nitrate, compressed, see also Cellulose nitrate blocks.*  
 —, compressing, 1606, 1633.  
 —, —, Bell's apparatus, 2168.  
 —, compressing of, dangers in, 1926.  
 —, compressing, Hollings apparatus, 2167.  
 —, —, New Explosives Co. method, 2173.  
 —, —, co-nitration, 2254.  
 —, consolidation by solvents, 1605.  
 —, contractility, overcoming, 2790.  
 —, —, overcoming by castor oil, 2790.  
 Cellulose nitrate, contractility, overcoming by Peru balsam, 2790.  
 —, —, overcoming by turpentine, 2790.  
 —, —, conveying, 2060.  
 —, —, Flack apparatus, 2063.  
 —, copal lacquers containing, 2592.  
 —, copal as solvent of, 2541.  
 —, copper acetate for coloring, 1836.  
 —, copper (ic) ferrocyanide for coloring, 1896.  
 —, copper (ic) sulfide for coloring, 1896.  
 —, cordite from, 2950.  
 —, cork and, 2610.  
 —, corn cures with, 2794.  
 —, coumarone as solvent of, 2541.  
 —, creosote lacquer of, 2593.  
 —, cresyl anilid as solvent of, 2540.  
 —, cresyl anilid phosphate as solvent of, 2540.  
 —, cresyl carbonate as solvent of, 2540.  
 —, cresylphenyl ether as solvent of, 2543.  
 —, cresyl phosphate as solvent of, 2540.  
 —, cresyl thiophosphate as solvent of, 2540.  
 —, cresyl-*p*-toluenesulfethylanilid as solvent of, 2546.  
 —, cresyl *p*-toluenesulfonate as solvent of, 2546.  
 —, croton oil and, 2793.  
 —, *p*-coumarone as solvent of, 2541.  
 —, cumulative detonation of, 2182.  
 —, cupranimonium solubility of, 1600.  
 —, cutting, 2782.  
 —, cyclic ethers as solvent of, 2543.  
 —, cyclohexanol as solvent of, 2548.  
 —, cyclohexanol acetate as solvent of, 2548.  
 —, cyclohexanol formate as solvent of, 2548.  
 —, cyclopentanol as solvent of, 2548.  
 —, cyclopentanol formate as solvent of, 2548.  
 —, *p*-cymene as solvent of, 2549.  
 —, dammar as lacquer with, 2593.  
 —, dammar as solvent of, 2541.  
 —, decolorizing, 2814.  
 —, decomposition of, 1627, 1796, 2814.  
 —, decomposition, alkaline, 1600, 1679.  
 —, —, in closed vessels, 1626.  
 —, —, formaldehyde produced by, 1715.

- Cellulose nitrate, decomposition,  
galvanic current, 1767.  
—, —, gaseous products of, 1797  
—, —, gases produced, 2369.  
—, —, gradual, 1708.  
—, —, by heat, 1713.  
—, —, by water, 1931, 1932.  
—, —, oxalic acid in, 1604  
—, —, oxalic acid in products of,  
1592.  
—, —, parapectic acid in, 1604.  
—, —, pectic acid in, 1604.  
—, —, decomposition of, products of,  
1593, 1708.  
—, —, decomposition, rate of, 1712.  
—, —, spontaneous, 1593  
—, —, steam, 1716.  
—, —, sulfuric acid for, 1679.  
—, —, summary, 1717, 1718  
—, —, tartaric acid in products of,  
1679.  
—, —, theory of, 1714.  
—, —, ultra-violet rays, 1763, 2368,  
2369.  
—, —, velocity of, 2366  
—, —, water as deterrent of, 1609.  
—, —, deflagrating pressures in, 1626.  
—, —, dehydrating, 2114.  
—, —, acetone for, 2124  
—, —, alcohol for, 2125.  
—, —, electro-osmotic, 2125.  
—, —, propyl alcohol for, 2125.  
—, —, solvent, 2124  
—, —, dehydration, alcohol, composi-  
tion, of, 2144.  
—, —, alcohol displacement, 2140  
—, —, alcoholic, Gentieu method,  
2144.  
—, —, Muller process, 2141.  
—, —, alcohol-soluble portion, 1663  
—, —, Blair, Campbell, McLean  
method, 2141.  
—, —, centrifugal, 2115, 2117.  
—, —, France method, 2130.  
—, —, fusel oil for, 2140.  
—, —, hydraulic, 2115, 2041.  
—, —, du Pont method, 2132.  
—, —, solvent, 2115, 2124.  
—, —, solvent without pressure,  
2140.  
—, —, denitration, 124, 1677, 1778,  
1806, 2026.  
—, —, by ammonium sulfide, 1677.  
—, —, formic acid for, 23.  
—, —, dense, manufacture of, 135, 241.  
—, —, nitrated wood pulp for, 288  
—, —, sensitizers, 2846.  
—, —, density of, 1755, 1756, 1757.  
—, —, determining, 1756, 2306.  
Cellulose nitrate, density, increasing,  
1898.  
—, —, depolarization of, 1760.  
—, —, desensitizers, 2380.  
—, —, detection, 2273.  
—, —, deterioration, 1720.  
—, —, determination, 1931.  
*Cellulose nitrate, deterioration, see also  
Cellulose nitrate, decomposition.*  
—, —, detonation, cumulative, 1639,  
2182.  
—, —, detonation of, gases in, 1800  
—, —, detonation, velocity of, 1795.  
—, —, detonator of, 2081.  
—, —, detonator of, compressed, 1625.  
—, —, development, historical, 2021.  
—, —, dextrin diacetate as solvent of,  
2549.  
—, —, dextrin distearate as solvent of,  
2549.  
—, —, dextrin dibutyrate as solvent of,  
2549.  
—, —, dextrin ditartrate as solvent of,  
2549  
—, —, dextrin pentacetate as solvent of,  
2549  
—, —, dextrin tetratartrate as solvent  
of, 2549.  
—, —, dextrin triacetate as solvent of,  
2549.  
—, —, diacetin as solvent of, 2537.  
—, —, diacetylchlorhydrin as solvent of,  
2543.  
—, —, diacetonearabitic ether as solvent  
of, 2543.  
—, —, dialkyl oxalates as solvent of,  
2540  
—, —, dialysis, 1760, 1766.  
—, —, dialysis with films of, 1773.  
—, —, dialysis through membrane of,  
1768  
—, —, dialysis, purifying by, 1769.  
—, —, dialyzable, 1772.  
—, —, 3,4-diaminobenzoic acid as  
solvent of, 2544.  
—, —, diamyl oxalates as solvent of, 2536.  
—, —, diamyl phthalate as solvent of,  
2538  
—, —, dibutyl oxalate as solvent of, 2536.  
—, —, dicresylglycerylether as solvent  
of, 2537.  
—, —, dicresyl phosphoric acid amyl  
ester as solvent of, 2541.  
—, —, dicresyl phosphoric acid ethyl  
ester as solvent of, 2541.  
—, —, dicresyl phosphoric acid methyl  
ester as solvent of, 2541.  
—, —, dicyanodiamide as solvent of,  
2552.

- Cellulose nitrate, dicyanodiamidine as solvent of, 2552.
- , diethyl adipate as solvent of, 2536.
- , diethylbromacetyl-urea as solvent of, 2551.
- , diethyldiphenyl-urea as solvent of, 2552.
- , diethyl isophthalate as solvent of, 2538.
- , diethyl phthalate as solvent of, 2538.
- , diethylsulfone as solvent of, 2536.
- , diethylsulfonodimethylmethane as solvent of, 2545.
- , diethylsulfonmethylethylmethane as solvent of, 2545.
- , differentiation of cellulose from, 1591.
- , difficultly inflammable, 1793.
- , diffraction gratings of, 2912.
- , diglycerol as solvent of, 2537.
- , dihydroxybenzene as solvent of, 2550.
- , dihydroxydiphenylsulfone as solvent of, 2548.
- , diluents, 2380.
- , dimethyl adipate as solvent of, 2536.
- , dimethylamino-*b*-coumarin as solvent of, 2542.
- , dimethylaniline as solvent of, 2552.
- , dimethylcyclohexyl carboxylic acid as solvent of, 2548.
- , dimethylnaphthalene as solvent of, 2539.
- , dimethylphenyl-carbamide as solvent for, 2544.
- , dinaphthyl carbonate as solvent of, 2530.
- , dinaphthyl ketone as solvent of, 2542.
- , dinaphthyl phosphoric acid amyl ester as solvent of, 2541.
- , dinaphthyl phosphoric acid ethyl ester as solvent of, 2541.
- , dinaphthyl phosphoric acid methyl ester as solvent of, 2541.
- , dinitrobenzene and, 2599.
- , dinitrobenzene as solvent of, 2544.
- , *m*-dinitrobenzene as solvent of, 2544.
- , dinitrodiphenylamine as solvent of, 2553.
- , dinitrotoluene as solvent of, 2544.
- Cellulose nitrate, dinitroxylenes as solvent of, 2544.
- , *m*-dinitroxylenes as solvent of, 2545.
- , dioxydiphenyldiethylmethane as solvent of, 2542.
- , dioxydiphenyldimethylmethane as solvent of, 2542.
- , dioxydiphenylethylmethane as solvent of, 2542.
- , dioxyditolyl dimethylmethane as solvent of, 2542.
- , dioxydiphenyl ketone as solvent of, 2542.
- , diphenylamine as solvent of, 2553.
- , diphenylbenzidine as solvent of, 2553.
- , diphenyl carbonate as solvent of, 2539.
- , diphenyl ether as solvent of, 2546.
- , diphenylglyceryl ether as solvent of, 2537.
- , diphenylphosphoric acid amyl ester as solvent of, 2541.
- , diphenylphosphoric acid cresyl anilid as solvent of, 2540.
- , diphenylphosphoric acid cresyl ester as solvent of, 2540.
- , diphenylphosphoric acid ethyl anilid as solvent of, 2540.
- , diphenylphosphoric acid ethyl ester as solvent of, 2540, 2541.
- , diphenylphosphoric acid methyl anilid as solvent of, 2540.
- , diphenylphosphoric acid methyl ester as solvent of, 2540, 2541.
- , diphenylphosphoric acid naphthyl anilid as solvent of, 2540.
- , diphenylphosphoric acid naphthyl ester as solvent of, 2540.
- , diphenylphosphoric acid phenyl anilid as solvent of, 2540.
- , diphenylphosphoric acid phenyl ester as solvent of, 2540.
- , diphenyl phthalate as solvent of, 2538.
- , *s*-diphenylthiocarbamide as solvent of, 2545.
- , diphenyl urea as solvent of, 2546.
- , dip lacquers, 2585.
- , dissolving by ether-alcohol, theory of, 1722.
- , dissolving by vapors, 2390.
- , distinguishing cellulose from, 1698.
- , distribution of, 1927.
- , double refraction of, 1765.

- Cellulose nitrate, duplication of from description, 1692.
- , dust, 2147.
  - , dry, exploding, 1806.
  - , —, detonation of, 1802.
  - , —, explosion, liability of, 1797.
  - , —, transportation, 2230.
  - , —, uses of, 1886.
  - , dry house for, 2146.
  - , dry plates of, 2825.
- Cellulose nitrate, dry plates, see also Collodion, dry plates.*
- , —, preservatives, 2828.
- Cellulose nitrate, dry plates, preservatives for, see also Collodion dry plates, preservatives, Cellulose nitrate-emulsion.*
- , drying, 1937, 1938, 2079, 2145, 2220, 2934, 2937.
  - , —, accidents in, 2150.
  - , —, ammonia for, 2079, 2147.
  - , —, benzine for, 2157.
  - , —, blocks, 2151.
  - , —, Caskey apparatus, 2148.
  - , —, Devine apparatus, 2154.
  - , —, Edson apparatus, 2148.
  - , —, Holton Heath method, 2151.
  - , —, Hyatt method, 2151.
  - , —, insulating while, 1766.
  - , —, Jupeau's work, 2158.
  - , —, kerosene for, 2157.
  - , —, Marlow's system, 2153.
  - , —, miscible non-solvent, 2156.
  - , —, Nobel's Explosives Co. method, 2151.
  - , —, non-solvent, 2156.
  - , —, Normair system, 2153.
  - , —, normal pressure, 2146.
  - , —, oil for, 2158.
  - , —, Passburg system, 2154.
  - , —, du Pont apparatus, 2156.
  - , —, power required, 2159.
  - , —, Quinan method, 2220.
  - , —, reduced pressure, 2153.
  - , —, temperature of, 2147.
  - , —, temperature regulation, 2148.
  - , —, vacuum, 2153.
  - , —, Volney method, 2150.
  - , drying stoves for, 2215.
  - , dyeing, 1673, 1893, 2070.
  - , early costs of, 1587.
  - , —, researches, 1646.
  - , edistin as solvent of, 2550.
  - , effect citric acid on viscosity of, 1789.
  - , effect of, on glucoside of *Aminia phalloides*, 1770.
  - , effect of, on saponin, 1770.
  - , effect of, on solanine, 1770.
- Cellulose nitrate, effect of temperature on stability of, 1614.
- , elastic masses of, 3051.
  - , electrical detonations of, 1766.
  - , electrical generation by, 1766.
  - , electrical properties of, 1600, 1766.
  - , electric charges, 1766.
  - , electric static machines containing, 1698.
  - , electrification of, 1766.
  - , electro-conductivity of, 1767.
  - , embossed, paper coated with, 2616.
  - , emulsin activity in presence of, 1770.
  - , emulsions, caffeine as preservative of, 2846.
  - , —, cinchonine acetate as preservative of, 2846.
  - , —, codeine as preservative of, 2846.
  - , —, codeine acetate as preservative of, 2846.
  - , —, preparing, 2836.
  - , emulsifying, 2840.
  - , enamel cloth containing, 2610.
  - , enameled leather of, 2609.
  - , enameled paper of, 2615.
  - , envelopes for storage batteries of, 2598.
  - , enzymatic power of, 1770.
  - , ether-alcohol solubility of, 1661.
  - , ether-alcohol soluble and insoluble, 1670.
  - , ether-soluble, 1625.
  - , ether as solvent of, 2383.
  - , ethoxyacetylborneol as solvent of, 2539.
  - , ethoxyacetylmenthol as solvent of, 2539.
  - , ethoxyacetylsantalol as solvent of, 2539.
  - , ethylacetanilid as solvent of, 2552.
  - , ethyl acetylsalicylate as solvent of, 2537.
  - , ethyl adipate as solvent of, 2541.
  - , ethyl anilid as solvent of, 2541.
  - , ethyl anilid phosphate as solvent of, 2540.
  - , ethyl azelaate as solvent of, 2541.
  - , ethyl carbamate as solvent of, 2536.
  - , ethyl carbanilate as solvent of, 2537.
  - , ethyl butyrate as solvent of, 2536.
  - , ethyl carbonate as solvent of, 2536.

- Cellulose nitrate, dry plates, ethyl cinnamate as solvent of, 2538.
- , ethyl dicresyl phosphate as solvent of, 2541.
  - , ethyl dinaphthyl phosphate as solvent of, 2541.
  - , ethyl diphenyl phosphate as solvent of, 2541.
  - , ethylethynyltrichloramidine as solvent of, 2544.
  - , ethylidene acetoacetate as solvent of, 2539.
  - , ethylideneglycolic glycerol as solvent of, 2543.
  - , ethyl lactate as solvent of, 2540.
  - , ethylnaphthyl ether as solvent of, 2543, 2546.
  - , ethyl-*m*-nitro-*p*-amidobenzoate as solvent of, 2544.
  - , ethyl oleate as solvent of, 2536.
  - , ethyl oxalate as solvent of, 2536.
  - , ethyl oxamate as solvent of, 2536.
  - , ethyl oxanilate as solvent of, 2540.
  - , ethyl palmitate as solvent of, 2536.
  - , ethyl pentachloranilid as solvent of, 2545.
  - , ethylphenyl urea as solvent of, 2540.
  - , ethyl phosphate as solvent of, 2540.
  - , ethyl phthalanate as solvent of, 2538.
  - , ethyl phthalate as solvent of, 2538, 2546.
  - , ethyl phthalamate as solvent of, 2538.
  - , ethyl phthalonate as solvent of, 2538.
  - , ethyl pimelate as solvent of, 2543.
  - , ethyl propionate as solvent of, 2536.
  - , ethyl salicylate as solvent of, 2540.
  - , ethyl sebacate as solvent of, 2536, 2543.
  - , ethyl stearate as solvent of, 2536.
  - , ethyl suberate as solvent of, 2543.
  - , ethyl tetrachloranilid as solvent of, 2545.
  - , ethyltrichloranilid as solvent of, 2545.
  - , ethyltrichlorisobutylacetylsalicylate as solvent of, 2538.
  - , ethyltrichlorisopropyl acetylsalicylate as solvent of, 2538.
- Cellulose nitrate, ethyl *p*-toluenesulfethylanilid as solvent, 2546.
- , ethyl *p*-toluene sulfonate as solvent of, 2546.
  - , eugenol, solvent of, 2537, 2543.
  - , eugenol benzyl ether as solvent of, 2543.
  - , euresol with, 2794.
  - , exalgin as solvent of, 2545.
  - , excipient for chilblains, 2794.
  - , exploding, force exerted in, 1623.
  - , —, light spectrum of, 1624, 1758.
  - , —, mercury fulminate for, 1606.
  - , explosion, gas, volume in, 1797.
  - , —, gaseous products of, 1797.
  - , —, gases in, 1599.
  - , —, —, analysis, 1799.
  - , —, heat units in, 1802.
  - , explosion of, by picric acid, 1796.
  - , explosion, pressure of, 1801.
  - , —, pressure developed in, 1798.
  - , —, under pressure, 1798.
  - , —, specific heat of gases of, 1801.
  - , —, temperature of, 1587, 1800, 1801.
  - , explosive barium nitrate and, 1629.
  - , explosive calcium nitrate, and 1629.
  - , explosive of lead nitrate and, 1626.
  - , explosive of nitroglycerol and, 1632, 1754.
  - , explosive of nitromannite and, 1819.
  - , explosive of picric acid and, 1636.
  - , explosive potassium nitrate and, 1629.
  - , explosive sensitiveness, reducing, 1706.
  - , explosive sodium nitrate and, 1629.
  - , explosive of tannin and, 1637.
  - , explosives, coating, German practice, 2923.
  - , extinction coefficient of, 1761.
  - , facilitating lighting candles by, 1888, 1889.
  - , feathers treated with, 2381.
  - , filling shells with, 1635.
  - , films, cleaning, 2899.
  - , —, dialyzable, 1770.
  - , —, exceedingly thin, 1762.
  - , —, polarizers of, 2913.
  - , filter cloth of, 1890.
  - , filtering by, 1892.
  - , filters of, 2920.
  - , filtration antigens by tubes of, 1773.

- Cellulose nitrate, filtration through, 1768.
- , fineness, determining, 2159, 2305
  - , fineness number of, 1743.
  - , fineness test for, 1743.
  - , fireworks containing, 2083.
  - , firing gun matches by, 1589.
  - , flash light of, 1887.
  - , flash light composition containing, 2599, 2983.
  - , flash light of magnesium and, 1636.
  - , flash light powder of, 2904.
  - , flexible, 2573.
  - , flotation, Selwig-Lange apparatus, 2065.
  - , flow of solutions of, 1729.
  - , force of disruption of, 1794.
  - , formaldehyde treatment of, 1706
  - , formalerythritic ether as solvent of, 2543.
  - , formamid as solvent of, 2545
  - , formates in decomposition of, 1716.
  - , formylamidophenyl anil carbonate as solvent of, 2546.
  - , formylamidophenyl ethyl carbonate as solvent of, 2546.
  - , formylamidophenyl isobutyl carbonate as solvent of, 2546.
  - , formylamidophenyl methyl carbonate as solvent of, 2546
  - , formyldiphenylamine as solvent of, 2553.
  - , fractional dialysis of, 1772
  - , fractional precipitation, 1679.
  - , fractional precipitation of acetone solutions, 1749.
  - , fractionation of, 1749.
  - , French, testing, 2268
  - , fuel containing, 1889, 1890.
  - , fungi, action of, on, 1802.
  - , fuse of potassium silicate and, 1595.
  - , fuses of, 1582, 1635, 2981.
  - , fuse strips of, 2574.
  - , gallic acid as preservative of, 2846.
  - , galvanic battery electrodes of, 2598.
  - , galvanic separators of, 1706.
  - , gelatinization of, 1724, 1744, 2249, 2924.
  - , gelatinized, decomposition by galvanic current, 1767.
  - , —, diphenylamine in, determining, 2336.
  - , —, hydrolysis of, 1709.
  - , gelatinizers for, 1868.
- Cellulose nitrate, gelatinizing, Claessen method, 1930.
- , gelatinizing, furfural for, 2904
  - , gliadin as solvent of, 2550.
  - , globulin as solvent of, 2550.
  - , glucosediacetate as solvent of, 2549.
  - , glucose dibutyrate as solvent of, 2549.
  - , glucose distearate as solvent of, 2549.
  - , glucose ditartrate as solvent of, 2549.
  - , glucose pentacetate as solvent of, 2549.
  - , glucose tetratartrate as solvent of, 2549.
  - , glucose triacetate as solvent of, 2549.
  - , glycerol *p*-toluenesulfethylanilid as solvent of, 2546
  - , glycerol *p*-toluenesulfonate as solvent of, 2546.
  - , glyceryl acetylsalicylate as solvent of, 2537.
  - , glyceryl benzoate as solvent of, 2543.
  - , glyceryl malate as solvent of, 2536
  - , glyceryl phthalate as solvent of, 2538, 2543
  - , glyceryl succinate as solvent of, 2543.
  - , glycol benzoate as solvent of, 2537
  - , glycol *o*-chlorbenzoate as solvent of, 2537
  - , glycol hydrocinnamate as solvent of, 2537.
  - , glycol hydrotropate as solvent of, 2537
  - , glycol *p*-nitrobenzoate as solvent of, 2537.
  - , glycol phenylacetate as solvent of, 2537.
  - , glycol phenyldiethylacetate as solvent of, 2537.
  - , glycol phenyldiethylcarbinacetate as solvent of, 2537.
  - , glycol phenylethylacetate as solvent of, 2537.
  - , glycol salicylate as solvent of, 2537.
  - , glycol *o*-toluate as solvent of, 2537.
  - , glycolic acid in saponification of, 1665.
  - , gold (ic) chloride for coloring, 1896.

- Cellulose nitrate, gold chloride as emulsion preservative of, 2847.
- , granular, nitrated wood pulp for, 288.
  - , —, manufacture of, 2023.
  - , granulating, 2074, 2246.
  - , —, Chron method, 2246.
  - , —, Feeden method, 2246.
  - , —, Pieper process, 2246.
  - , —, du Pont process, 2247.
  - , —, Schmidt method, 2246.
  - , —, Voight process, 2247.
  - , granulations of, 2631.
  - , grease-proof paper with, 2615.
  - , grit in, removal, 2102.
  - , guaiac as emulsion preservative of, 2847.
  - , guanidine as solvent of, 2552.
  - , guaiacol, phenyl ether as solvent of, 2543.
  - , guanidine nitrate as solvent of, 2552.
  - , gum, 2803.
  - , hardening, 2782.
- Cellulose nitrate, hardening, see also Cellulose nitrate, indurating.
- , heat of combustion of, 1620, 1791, 1795, 1796.
  - , heat of decomposition, 1628.
  - , heat of formation of, 1627, 1628, 1698, 1794, 1796.
  - , heat test for, 1613.
  - , heat test, masking, mercuric chloride for, 2302.
  - , —, Sy modification, 2339.
  - , heat of transformation, 1699.
  - , heat units in, 1622.
  - , heating, constant temperature apparatus for, 2350.
  - , —, decomposition by, 1713.
  - , hematoxylin for coloring, 1896.
  - , hexahydro-*o*-cresol as solvent of, 2548.
  - , hides coated with, 2618.
  - , highest obtainable, 1651, 1658.
  - , historical, 1567.
  - , historical development, 2922.
  - , hydrate of, 1377, 1753, 1901.
  - , hydrazines with, 2915.
  - , hydrolysis of, 151, 1708, 1931.
  - , —, alkaline, 1932.
  - , hydrolysis, calcium carbonate for, 2095.
  - , —, preventing, 2093.
  - , —, velocity of, 1708, 1717.
  - , hydroquinone as solvent of, 2550.
  - , hygroscopicity of, 1750.
  - , —, diminishing, 1754.
- Cellulose nitrate, hygroscopicity, normal, 1751.
- , ichthammousalicylic acid, 2795.
  - , ichthyol and, 2792.
  - , igniting, changes by, 1713.
  - , ignition of, 2150, 2296.
  - , ignition, gaseous products of, 1713.
  - , —, luminous phenomena, 1650.
  - , —, by sodium peroxide, 1699.
  - , —, with sodium peroxide, 1668.
  - , ignition fuses of, 2981.
  - , ignition temperature, 1664, 1679.
  - , imbedding with, 2779.
  - , imitation pearl with, 2588.
  - , impregnating drum skins with, 2609.
  - , impregnating gut strings with, 2609.
  - , impurities in, removal, 2102.
  - , incandescent gas mantles of, 2595, 2655.
  - , incendiary composition of, 1890.
  - , incineration of, 2296.
  - , indene as solvent of, 2541.
  - , *p*-indene as solvent of, 2541.
  - , indurating, 1897.
  - , inflammability of, 1776.
  - , inflammability, Abel's work, 1605.
  - , —, alum for reducing, 1789.
  - , —, aluminium acetate for reducing, 1787, 1789.
  - , —, aluminium bromide for reducing, 1779, 1782.
  - , —, aluminium chloride for reducing, 1779, 1782.
  - , —, aluminium hydroxide for reducing, 1779, 1789.
  - , —, aluminium iodide for reducing, 1779, 1782.
  - , —, aluminium ricinoleate for reducing, 1786.
  - , —, aluminium silicate for reducing, 1787.
  - , —, aluminium sulfate for reducing, 1789, 1790.
  - , —, aluminium sulforicinoleate for reducing, 1786.
  - , —, ammonium bromide for reducing, 1779.
  - , —, ammonium carbamate for reducing, 1790.
  - , —, ammonium carbonate for reducing, 1790.
  - , —, ammonium chloride for reducing, 1779, 1788.
  - , —, ammonium iodide for reducing, 1779.
  - , —, ammonium magnesium phosphate for reducing, 1788.

- Cellulose nitrate, inflammability, ammonium nitrate for reducing, 1788.  
 —, —, ammonium oxalate for reducing, 7189, 1790.  
 —, —, ammonium sulfate for reducing, 1790.  
 —, —, amyl borate for reducing, 1786.  
 —, —, amyl silicate, for reducing, 1787.  
 —, —, antimony chloride for reducing, 1790.  
 —, —, barium chloride for reducing, 1779, 1780.  
 —, —, barium chromate for reducing, 1779, 1780.  
 —, —, barium iodide for reducing, 1779, 1780.  
 —, —, barium phosphate for reducing, 1779, 1780.  
 —, —, beeswax for reducing, 1785.  
 —, —, borated benzene for reducing, 1787.  
 —, —, borates for reducing, 1786.  
 —, —, boric acid for reducing, 1786.  
 —, —, butyl borate for reducing, 1786.  
 —, —, butyl silicate for reducing, 1787.  
 —, —, cadmium bromide for reducing, 1779.  
 —, —, cadmium chloride for reducing, 1779.  
 —, —, cadmium iodide for reducing, 1779.  
 —, —, calcium arsenate, for reducing, 1780.  
 —, —, calcium arsenite for reducing, 1780.  
 —, —, calcium chloride for reducing, 1779, 1780.  
 —, —, calcium chromate for reducing, 1779, 1780.  
 —, —, calcium iodide for reducing, 1779, 1780.  
 —, —, calcium oxalate for reducing, 1779, 1780.  
 —, —, calcium phosphate for reducing, 1779, 1780.  
 —, —, calcium sulfate for reducing, 1779, 1782.  
 —, —, camphogine for reducing, 1790.  
 —, —, cellulose acetate for reducing, 1790.  
 —, —, cetyl palmitate for reducing, 1785.  
 —, —, chromium bromide for reducing, 1779.  
 Cellulose nitrate, inflammability, chromium chloride for reducing, 1779.  
 —, —, chromium iodide for reducing, 1779.  
 —, —, chromium oxide for reducing, 1780.  
 —, —, chondrin for reducing, 1790.  
 —, —, cobalt bromide for reducing, 1779, 1782.  
 —, —, cobalt chloride for reducing, 1779, 1782.  
 —, —, cobalt iodide for reducing, 1779, 1782.  
 —, —, cobalt phosphate for reducing, 1780.  
 —, —, copper (ic) bromide for reducing, 1779, 1782.  
 —, —, copper (ic) chloride for reducing, 1779, 1782.  
 —, —, copper (ic) iodide for reducing, 1779, 1782.  
 —, —, diethyl disilicate for reducing, 1787.  
 —, —, diethyl oxalate for reducing, 1789.  
 —, —, diminishing, 1931.  
 —, —, dinitroacetylcellulose, for reducing, 1790.  
 —, —, dinitroxyline for reducing, 1785.  
 —, —, disilicic esters for reducing, 1787.  
 —, —, ethyl borate for reducing, 1786.  
 —, —, ethyl monosilicate for reducing, 1787.  
 —, —, ethyl silicate for reducing, 1787, 1789.  
 —, —, fish glue for decreasing, 1784.  
 —, —, gelatin for reducing, 1790.  
 —, —, glyceryl orthosilicate for reducing, 1788.  
 —, —, glyceryl silicates for reducing, 1788.  
 —, —, hexaethyl disilicate for reducing, 1787.  
 —, —, iron (ic) bromide for reducing, 1779.  
 —, —, iron (ic) chloride for reducing, 1779.  
 —, —, iron (ous) chloride for reducing, 1780.  
 —, —, iron (ic) iodide for reducing, 1779.  
 —, —, iron (ic) oxalate for reducing, 1789.  
 —, —, lead chloride for reducing, 1779, 1780.  
 —, —, lead chromate for reducing, 1779, 1780.



- Cellulose nitrate, inflammability, lead fluoride for reducing, 1780.  
 —, —, lead iodide for reducing, 1779, 1780.  
 —, —, lead nitrite for reducing, 1780.  
 —, —, lead oxychloride for reducing, 1788.  
 —, —, lead phosphate for reducing, 1779, 1780.  
 —, —, lead ricinoleate for reducing, 1786.  
 —, —, lead sulforicinate for reducing, 1786.  
 —, —, lithium bromide for reducing, 1779.  
 —, —, lithium chloride, for reducing, 1779.  
 —, —, lithium iodide, for reducing, 1779.  
 —, —, magnesium borate for reducing, 1788.  
 —, —, magnesium bromide for reducing, 1779.  
 —, —, magnesium chloride for reducing, 1779, 1780.  
 —, —, magnesium iodide for reducing, 1779.  
 —, —, magnesium oleate for reducing, 1785.  
 —, —, magnesium oxide for reducing, 1789.  
 —, —, magnesium ricinoleate for reducing, 1786.  
 —, —, magnesium sulfate for reducing, 1789.  
 —, —, magnesium sulforicinate for reducing, 1786.  
 —, —, maltodextrin for reducing, 1783.  
 —, —, manganese bromide for reducing, 1779, 1782.  
 —, —, manganese chloride for reducing, 1779, 1782.  
 —, —, manganese iodide for reducing, 1779, 1782.  
 —, —, mercury (ic) bromide for reducing, 1779.  
 —, —, mercury (ic) chloride for reducing, 1779.  
 —, —, mercury (ic) iodide for reducing, 1779.  
 —, —, methyl borate for reducing, 1786.  
 —, —, methyl silicate for reducing, 1787, 1789.  
 —, —, microcosmic salt for reducing, 1788.  
 —, —, naphthyl carbonate for reducing, 1785.
- Cellulose nitrate, inflammability, naphthyl phosphate for reducing, 1785.  
 —, —, nickel bromide for reducing, 1779, 1782.  
 —, —, nickel chloride for reducing, 1779, 1782.  
 —, —, nickel iodide for reducing, 1779, 1782.  
 —, —, nitrocumene for reducing, 1785.  
 —, —, oxalic esters for reducing, 1789.  
 —, —, paraffin for reducing, 1785.  
 —, —, potassium oxalate for reducing, 1789.  
 —, —, propyl borate for reducing, 1786.  
 —, —, propyl silicate for reducing, 1787.  
 —, —, quartz for reducing, 1787.  
 —, —, reducers, 1703, 1704.  
 —, —, reducing, 1776, 2626.  
 —, —, resin soap for decreasing, 1784.  
 —, —, resinsates for reducing, 1786.  
 —, —, resinoleates for reducing, 1786.  
 —, —, silica for reducing, 1787.  
 —, —, silicic ethers for reducing, 1787.  
 —, —, shellac for decreasing, 1784.  
 —, —, soaps for decreasing, 1784.  
 —, —, sodium ammonium phosphate for reducing, 1788.  
 —, —, sodium bicarbonate for reducing, 1788, 1790.  
 —, —, sodium carbonate for reducing, 1788.  
 —, —, sodium oleate for reducing, 1785.  
 —, —, sodium oxalate for reducing, 1789, 1790.  
 —, —, sodium palmitate for reducing, 1779.  
 —, —, sodium silicate for reducing, 1787.  
 —, —, sodium stearate for reducing, 1785.  
 —, —, spermaceti for reducing, 1785.  
 —, —, stearite for reducing, 1790.  
 —, —, strontium bromide for reducing, 1779.  
 —, —, strontium chloride for reducing, 1779.  
 —, —, strontium iodide for reducing, 1779.  
 —, —, tetracetyl octonitro-cellulose for reducing, 1790.  
 —, —, tetraethyl silicate for reducing, 1788.

- Cellulose nitrate, inflammability, tri-nitroxylene for reducing, 1785.  
 —, —, triphenyl phosphate for reducing, 1790.  
 —, —, tungsten salts for reducing, 1789.  
 —, —, urea for reducing, 1790.  
 —, —, urea oxalate for reducing, 1789.  
 —, —, vaseline for reducing, 1785.  
 —, —, vegetable wax for reducing, 1785.  
 —, —, water glass for reducing, 1787.  
 —, —, zinc acetate for reducing, 1785.  
 —, —, zinc bromide for reducing, 1779.  
 —, —, zinc chloride for reducing, 1779, 1788.  
 —, —, zinc iodide for reducing, 1779.  
 —, —, zinc oxychloride for reducing, 1788.  
 —, —, zinc oxide for reducing, 1779.  
 —, —, zinc seicinate for reducing, 1786.  
 —, —, zinc sulfuricinate for reducing, 1786.  
 —, inflammation, gases produced, 1627.  
 —, insensibility to shock, diminishing, 2984.  
 —, iodine with, 2792.  
 —, iodized uric acid with, 2794.  
 —, iodoform and, 2792.  
 —, iodol and, 2792.  
 —, insoluble, determining, 2294, 2374.  
 —, —, Schrimpf method, 2295.  
 —, —, nitrocellulose in, 2264.  
 —, inspection, 2270.  
 —, instability, causes, 1719.  
 —, insulating, 1766.  
 —, insulating submarine cables with, 2598.  
 —, iron in, 2070.  
 —, —, elimination, 2088.  
 —, removal, 2102.  
 —, iron (ic) chloride for coloring, 1896.  
 —, iron (ic) ferrocyanide for coloring, 1896.  
 —, iron-free 1939, 1940.  
 —, iron (ic) hydroxide for coloring, 1896.  
 —, isoborneol dibromdihydrocin-namic acid as solvent of, 2548.  
 —, isobutenyl acetate as solvent of, 2536.  
 —, isobutyliditrichloroacetyl tartrate as solvent of, 2536.  
 Cellulose nitrate, isobutyl oxanilate as solvent of, 2540.  
 —, isoeugenol as solvent of, 2543.  
 —, isoeugenol benzyl ether as solvent of, 2543.  
 —, isopropyl-*p*-amino benzoate as solvent of, 2537.  
 —, isopropyl-*p*-nitro benzoate as solvent of, 2537.  
 —, kauri as solvent of, 2541.  
 —, knots in, 2104.  
 —, —, removing, 2104.  
 —, labile, 1674.  
 —, lacquer of, 1590, 2381.  
 —, lacquers, artificial corks, containing, 2583.  
 —, —, blankets, printers, containing, 2583.  
 —, —, China wood oil with, 2593.  
 —, —, dip, 2585.  
 —, —, matches containing, 2583.  
 —, —, painting on glass with, 2583.  
 —, —, plaster casts containing, 2583.  
 —, —, printers blankets containing, 2583.  
 —, lacquers of resin and, 2590.  
 —, lactylamidophenyl amyl carbon-ate as solvent of, 2540.  
 —, lactylamidophenyl ethyl carbon-ate as solvent of, 2540.  
 —, lactylamidophenyl isobutyl carbon-ate as solvent of, 2546.  
 —, lactylamidophenyl methyl carbon-ate as solvent of, 2546.  
 —, lead acetate, basic, as solvent of, 2549.  
 —, lead acetate for coloring, 1896.  
 —, lead chromate for coloring, 1896.  
 —, lead iodide for coloring, 1896.  
 —, lead phosphate for coloring, 1896.  
 —, lead plaster and, 2793.  
 —, lead sulfide for coloring, 1896.  
 —, levulose diacetate as solvent of, 2549.  
 —, levulose dibutyrate as solvent of, 2549.  
 —, levulose distearate as solvent of, 2549.  
 —, levulose ditartrate as solvent of, 2549.  
 —, levulose pentacetate as solvent of, 2549.  
 —, levulose tetratartrate as solvent of, 2549.  
 —, levulose triacetate as solvent of, 2549.  
 —, light filters, 2875.  
 —, light reflection of, 1769.

*Cellulose nitrate, lignin, see Nitrolignin.*

- , linalyl acetate as solvent of, 2549.
- , loading, density of, 1801.
- , logwood lacquer containing, 2592.
- , low-nitrogen containing, 1882.
- , low viscosity, preparing, 563, 567.
- , lustering, silk with, 2573.
- , magazines, lightning protection, 1925.
- , maisine as solvent of, 2550.
- , malic acid in decomposition of, 1665.
- , malonic acid in saponification of, 1666.
- , manganous sulfide for coloring, 1896.
- , manganous chloride for coloring, 1896.
- , manol as solvent of, 2545.
- , manonitrometric analysis, 2313.
- , manufacture of, 171.
- , —, Abel method, 1605, 1611, 1940.
- , —, Abel process, tests for, 1613.
- , —, acid boil, 2071.
- , —, acid discharge system, 2197.
- , —, acid overflow, 2197.
- , —, acid required, for, 2059.
- , —, acid storage, 2194.
- , —, acid temperature regulation, 2194.
- , —, acids, labor requirements, 2234.
- , —, ammonium nitrate from wash water, 2067.
- , —, Assadas method, 1950.
- , —, bag examination room, 2226, 2228.
- , —, bag holders, 2218.
- , —, bale breaking, 2208.
- , —, Bantock method, 2017.
- , —, beater capacity, 2197.
- , —, beater Rouse elevators, 2197.
- , —, beaters, 2197.
- , —, power required, 2197.
- , —, beating, 2083, 2244.
- , —, Beck-Nenninger apparatus, 2016.
- , —, Bethisy method, 2030.
- , —, blanket grit separation, 2214.
- , —, blanket washing boxes, 2201.
- , —, blankets, 2201.
- , —, blending, 2107, 2215.
- , —, blending tanks, 2203.
- , —, boiling, 2071, 2211.
- , —, discharging, 2212.
- , —, English practice, 2076.
- , —, pressure, 2078.
- Cellulose nitrate, manufacture of, boiling, specifications, 2260.
- , —, Bourain, 2026.
- , —, Briailles process, 2005.
- , —, centrifugal, 1952, 1955.
- , —, centrifugal, Alliot apparatus, 1974.
- , —, Chardonnet method, 1955.
- , —, continuous, 1956.
- , —, Kron method, 1955.
- , —, Morane process, 1956.
- , —, Selwig-Lange process, 1956.
- , —, stoneware, 1978.
- , —, Tollhurst apparatus, 1968.
- , —, Vajdady process, 1973.
- , —, Chardonnet method, 2022.
- , —, Claessen process, 2018.
- , —, colloiding, 2127.
- , —, continuous, 2008.
- , —, Hollings process, 2031.
- , —, conveying, 2060, 2063.
- , —, cotton required, for 2059.
- , —, cotton steeper, 1964.
- , —, cotton waste specifications, 2207.
- , —, cotton waste treatment, 2189, 2207.
- , —, Crombie method, 2031.
- , —, dangers in, 1925.
- , —, dehydration, 2114, 2127.
- , —, determining yield, 2062.
- , —, dextrin from wash water, 2067.
- , —, Diamanti process, 2003.
- , —, de-acidifying, 2076.
- , —, direct dipping process, 1943.
- , —, acid mixture, 1946.
- , —, acid recovery, 1948.
- , —, German practice, 1950.
- , —, Nobel's Explosives Co. process, 1946.
- , —, prewashing, 1948.
- , —, displacement method, 1978, 2240.
- , —, acid displacement, 1991.
- , —, Claessen process, 1991.
- , —, details of, 1985.
- , —, mixed acid for, 1989.
- , —, nitration, 2210.
- , —, rate of, 1984.
- , —, spent acids from, 1989.
- , —, washing, 2077.
- , —, waste acid control, 1993.
- , —, Ditmar process, 2023.
- , —, drainage and save-all, 2225.
- , —, drying, 2079, 2145.
- , —, cold air supply, 2225.
- , —, hot air supply, 2224.
- , —, house equipment, 2220.

- Cellulose nitrate, manufacture, drying, nitro cotton, 2220.  
 —, —, —, Quinan method, working results, 2229.  
 —, —, —, stoves, 2215.  
 —, —, —, operating, 2227.  
 —, —, efficiency of methods, 2054.  
 —, —, ejector fans, 2194.  
 —, —, electric method, 2005, 2017.  
 —, —, flotation, 2064.  
 —, —, flow sheet, 2232, 2236.  
 —, —, Fussell system, 2002.  
 —, —, Godeffray process, 2011.  
 —, —, Greening process, 2025.  
 —, —, Greta flow sheet, 2336.  
 —, —, grinding, 2093.  
 —, —, grit runs, 2242.  
 —, —, grit separation, 2200.  
 —, —, grit tanks, 2202.  
 —, —, hand method, 1934.  
 —, —, Hart process, 2016.  
 —, —, Henchman process, 2018.  
 —, —, impurities in, removal, 2201.  
 —, —, Kaltenbach apparatus, 2002.  
 —, —, Labbe process, 2030.  
 —, —, labor requirements, 2231.  
 —, —, launders, 2200.  
 —, —, Lenk process, 1505, 1934.  
 —, —, long fiber conffos, 2201.  
 —, —, low nitrogen, 2019.  
 —, —, Mackie process, 2009.  
 —, —, magazines, 2229.  
 —, —, magnets, 2201.  
 —, —, Maxim process, 2013.  
 —, —, methods of manipulation, 2243.  
 —, —, mixed acid, 2209.  
 —, —, Morane method, 2029.  
 —, —, Müller method, 2026.  
 —, —, neutralizing, 2066.  
 —, —, nitrating house, 2190.  
 —, —, nitrating plant, 2239.  
 —, —, nitrating, specifications, 2260.  
 —, —, nitric acid required for, 2059.  
 —, —, over nitration, remedying, 1852.  
 —, —, oxalic acid from wash water, 2067.  
 —, —, Patronen-Fabrik process, 1951.  
 —, —, Pharmacopeal, 1695.  
 —, —, picking, 2212.  
 —, —, poacher capacity, 2203.  
 —, —, poachers, 2202, 2243.  
 —, —, poaching, 2098, 2214.  
 —, —, du Pont mechanical system, 1994.  
 —, —, du Pont and Thompson apparatus, 2001.  
 Cellulose nitrate, manufacture, pot method, 1934.  
 —, —, power required, 2235.  
 —, —, power system, screen house, 2218.  
 —, —, preliminary boils, 2076.  
 —, —, preliminary washing, 2059.  
 —, —, precautions in, 1602.  
 —, —, pressure boiling, 2078.  
 —, —, Prost-Michey process, 2019.  
 —, —, pulper house wringing, 2216.  
 —, —, pulping, 2083, 2242.  
 —, —, fineness, 2214.  
 —, —, specifications, 2260.  
 —, —, Queen's Ferry practice, 2238.  
 —, —, Quinan process, 2026.  
 —, —, reciprocating bin, 2217.  
 —, —, reclaiming, 2068.  
 —, —, removal of acid vapors, 1977.  
 —, —, removal foreign matter, 2102.  
 —, —, Revy process, 2021.  
 —, —, re-working nitro cotton, 2215.  
 —, —, re-work tank, 2207.  
 —, —, save all, 2203.  
 —, —, Schneider process, 2020.  
 —, —, Schonlau process, 2026.  
 —, —, Smew method, 1930.  
 —, —, screen cleaning room, 2220.  
 —, —, screening, 2112, 2216.  
 —, —, screening capacity, 2220.  
 —, —, screening house, 2215.  
 —, —, settling, 2098.  
 —, —, shafting in, 2219.  
 Cellulose nitrate, manufacture, slabs, see Cellulose nitrate, blocks.  
 —, —, manufacture of, solvent dehydration without pressure, 2140.  
 —, —, specifications, 2260.  
 —, —, spent acid pump house, 2194.  
 —, —, stabilization, 2211.  
 —, —, stationary baffles, 2218.  
 —, —, steam required, 2235.  
 —, —, steam supply, 2195.  
 —, —, steeping, 1946.  
 —, —, stuff chest launders, 2200.  
 —, —, sulfuric acid required for, 2059.  
 —, —, tank method, 1942.  
 —, —, tests, 2235.  
 —, —, testing, 2262.  
 —, —, Thomson process, 1978.  
 —, —, transporting nitro cotton, 2229.  
 —, —, vacuum nitration, 1970.  
 —, —, Dumon's process, 1970, 1972, 2006.  
 —, —, Nobel process, 1973.  
 —, —, vat house, 2194.  
 —, —, Voigt process, 2012.  
 —, —, Voswinkel process, 2011.  
 —, —, washing, 2059, 2083, 2098.

- Cellulose nitrate, manufacture of, slabs, washing, Classen process, 2068.
- , —, —, Dreger apparatus, 2068.
  - , —, —, Seyffert process, 2067.
  - , —, —, Umbach process, 2067.
  - , —, washing boxes, 2201.
  - , —, wash water, utilization, 2067.
  - , —, —, Classen process, 2068.
  - , —, water consumption, 2200.
  - , —, water required, 2235.
  - , —, water treatment, 2211.
  - , —, weighing nitro cotton, 2203.
  - , —, wet nitro cotton magazines, 2229.
  - , —, Wolf process, 2010.
  - , —, working results, 2220.
  - , —, wringers, 2203.
  - , —, Wunderlich apparatus, 1951.
  - , —, yield, 2160, 2235.
  - , —, determining, 2062.
  - , —, Zellstoff-fabrik process, 2020.
  - , mastic as solvent of, 2541.
  - , mastic lacquer containing, 2593.
  - , match composition of, 1887.
  - , match cords of, 2081.
  - , matches of, 1582, 1880.
  - , materials required for one ton of, 2059.
  - , maximum nitrogen content, 1658.
  - , meconine as emulsion preservative of, 2846.
  - , meconine acetate as emulsion preservative of, 2846.
  - , membranes of, 2913.
  - , membrane, dialysis through, 1768.
  - , membranes, for diffusion phenomena, 1768.
  - , —, filtration through, 1771.
  - , —, manufacture of, Farmer process, 1774.
  - , —, physical experiments, by 1776.
  - , —, physical properties of, 1768.
  - , —, separating gelatinates by, 1775.
  - , menthol ethoxyacetate as solvent of, 2539.
  - , menthol ethoxychloracetate as solvent of, 2539.
  - , menthol methoxyacetate as solvent of, 2539.
  - , menthol methoxychloracetate as solvent of, 2539.
  - , methyl acetate as solvent of, 2538, 2549.
  - , mercerized, solubility of, 29.
  - , —, viscosity of, 29.
  - , mercerizing finish of, 234.
  - , mercuric chloride and, 2793.
  - Cellulose nitrate, mercuric chloride in, determining, 2302.
  - , mercury (ic) chloride for coloring, 1896.
  - , mercury (ic) iodide and, 2793.
  - , mercury in, determining, Berkout method, 2304.
  - , —, —, Jannopoulos method, 2303.
  - , —, —, Moir method, 2303, 2304.
  - , —, —, Patterson method, 2305.
  - , —, —, spectroscopically, 2305.
  - , —, —, Wolff method, 2304.
  - , mercury (ic) iodide for coloring, 1896.
  - , mercury (ic) oxide and, 2793.
  - , meta-dinitrobenzene as solvent of, 2544.
  - , metallizing lace by, 2599.
  - , metallizing yarns by, 2645.
  - , methoxyacetylborneol as solvent of, 2539.
  - , methoxyacetylmenthol as solvent of, 2539.
  - , methoxyacetylsantalol as solvent of, 2539.
  - , methylacetanilid as solvent of, 2545, 2552.
  - , methyl acetylsalicylate as solvent of, 2537.
  - , methyl adipate as solvent of, 2543.
  - , *b*-methyl adipate as solvent of, 2536.
  - , methyl anilid as solvent of, 2540.
  - , methyl anilid phosphate as solvent of, 2540.
  - , methylaniline as solvent of, 2539.
  - , methyl azelate as solvent of, 2543.
  - , methyl benzyl ether as solvent of, 2543.
  - , methyl carbamate as solvent of, 2536.
  - , methyl carbanilate as solvent of, 2537.
  - , methyl carbonate as solvent of, 2536.
  - , methylcyclohexanol as solvent of, 2548.
  - , *b*-methylcyclohexanol acetate as solvent of, 2548.
  - , *b*-methylcyclohexanol formate as solvent of, 2548.
  - , 1-methylcyclohexanone as solvent of, 2548.
  - , methylcyclohexyl carboxylic acid as solvent of, 2548.
  - , methyl-3,4-diaimidobenzoic acid as solvent of, 2544.
  - , methyl dicresyl phosphate as solvent of, 2541.

- Cellulose nitrate, methyl dinaphthyl phosphate as solvent of, 2541.
- , methyl diphenyl phosphate as solvent of, 2541.
- , methyl diphenyl urea as solvent of, 2546.
- , methylethyltrichloramidine as solvent of, 2544.
- , methylketobutanol as solvent of, 542.
- , methylnaphthylamine as solvent of, 2539.
- , methylnaphthyl ether as solvent of, 2543.
- , methylnaphthyl ketone as solvent of, 2542.
- , methyl oleate as solvent of, 2536.
- , methyl oxalate as solvent of, 2536.
- , methyl oxamate as solvent of, 2536.
- , methyl oxanilate as solvent of, 2540.
- , methyloxynaphthyl ketone as solvent of, 2542.
- , methyl palmitate as solvent of, 2336.
- , methyl pentachloranilid as solvent of, 2545.
- , methylphenyl urea as solvent of, 2546.
- , methylphenyl urethane as solvent of, 2546.
- , methyl phosphate as solvent of, 2540.
- , methyl pimelate as solvent of, 2543.
- , methyl sebacate as solvent of, 2536, 2543.
- , methyl stearate as solvent of, 2536.
- , methyl suberate as, 2543.
- , methyl tetrachloranilid as solvent of, 2545.
- , methyltrichloranilid as solvent of, 2545.
- , methylurea nitrate as solvent of, 2552.
- , methylenethylenic glycerol as solvent of, 2543.
- , methylene-glycerol as solvent of, 2543.
- , microscopical appearance, 1760.
- , microscopical study of, 1761.
- , microscopical uses of, 2779.
- , mineral constituents in, determining, 2296.
- , —, Schjerner method, 2297.
- , moist, ballistics of, 1704.
- , —, Prussian regulations, 2271.
- Cellulose nitrate, moist, solubility of, 1677.
- , moisture in, 1607, 1750.
- , —, absorbing by kieselguhr, 1754.
- , —, determining, 2274.
- , —, Hansen's law, 2274.
- , —, removing, 2145.
- , moisture testing, U. S. Ordnance method, 2274.
- , moisture-proofing paper by, 2888.
- , mold on, 344, 1710.
- Cellulose nitrate, molding, see Cellulose nitrate, compressing.
- , molding, press for, 2176.
- , monacetin as solvent of, 2537.
- , monoacetochlorhydrin as solvent of, 2543.
- , monochlorbenzylidene diacetate as solvent of, 2539.
- , monochloronaphthalene as solvent of, 2536.
- , mononitromonochlorhydrin as solvent of, 2543.
- , morphine with, 2794.
- , morphine as emulsion preservative of, 2846.
- , morphine acetate emulsion as preservative of, 2846.
- , mother-of-pearl with, 2588.
- , mould on, 344, 1710.
- , moulding, 1635.
- , moulds, action of, on, 1802.
- , naphthalene as solvent of, 2539.
- , naphthalene benzyl nitrochloride as solvent of, 2540.
- , naphthalene bromide as solvent of, 2540.
- , naphthalene chloride as solvent of, 2540.
- , naphthalene nitrochloride as solvent of, 2540.
- , naphthalene nitrochloride as solvent of, 2540.
- , naphthalene trichloride as solvent of, 2539.
- , naphthol as solvent of, 2539.
- , *b*-naphtholamyl ether as solvent of, 2537.
- , naphthyl acetate as solvent, 2538.
- , naphthyl anilid as solvent of, 2540.
- , naphthyl anilid phosphate as solvent of, 2540.
- , naphthyl benzoate as solvent of, 2538.
- , naphthyl carbonate as solvent of, 2540.
- , naphthyl dihydrocarvone as solvent of, 2549.
- , naphthyl ether as solvent of, 2544.

- Cellulose nitrate, *b*-naphthyl ether as solvent of, 2541.
- , naphthylphenyl ether as solvent of, 2543.
- , naphthyl phosphate as solvent of, 2540.
- , naphthyl propionate as solvent of, 2538.
- , naphthyl thiophosphate as solvent of, 2540.
- , narceine acetate as emulsion preservative of, 2846.
- , narceine as emulsion preservative of, 2846.
- , narcotine as emulsion preservative of, 2846.
- , narcotine acetate as emulsion preservative of, 2846.
- , nickel chloride for coloring, 1896.
- , nickel oxalate for coloring, 1896.
- , nitrated, 1911, 2971.
- , nitrates in decomposition of, 1716.
- , nitrites, in decomposition of, 1718.
- , 3-nitro-4-acetamidobenzoic acid as solvent of, 2544.
- , *p*-nitroacetacetanilid as solvent of, 2545.
- , nitroacetylcellulose as solvent of, 2541.
- , nitrobenzene as solvent of, 2544.
- , nitrobenzoyl nitrate as solvent of, 2541.
- , nitrobutylcellulose as solvent of, 2541.
- , nitrogen content of, 589.
- , nitrogen in, determining, 978, 2308, 2374.
- , —, —, Dumas method, 2315.
- , —, —, by ferrous chloride, 2313.
- , —, —, gravimetric, 2312.
- , —, —, nitrometer for, 2308.
- , —, —, nitrometer, errors in, 2319.
- , —, —, by nitron, 2316.
- , —, —, Planchon method, 2320.
- , —, —, Schloesing method, 2313.
- , —, —, estimating, Longi method, 2317.
- , —, —, nitrometer determination, errors, 2319.
- , —, —, testing, 2266.
- , —, —, U. S. Ordnance test for, 2371.
- , nitronaphthyl acetate as solvent of, 2539.
- , nitrocymene as solvent of, 2544.
- , nitroglycerol and, 2948.
- , nitroglycerol as solvent of, 2536.
- , nitroisobutylglycerol trinitrate as solvent of, 2536.
- Cellulose nitrate, nitronaphthalene as solvent of, 2539, 2544.
- , nitronaphthalene trichloride as solvent of, 2539.
- , nitrotoluene as solvent of, 2544.
- , *p*-nitrotoluene as solvent of, 2544.
- , nomenclature, 1696.
- , non-homogeneity of, 1673.
- , non-inflammable, 1776, 1792.
- , non-solvents, 2380.
- , normal hygroscopic moisture in, 1750.
- , oil of black pepper with, 2793.
- , oil of cade and, 2792.
- , oil of mezereum and, 2792.
- , oil of mustard with, 2793.
- , oil of savin and, 2792.
- , optical activity, 1760.
- , optical properties, 1757.
- , organisms for photo emulsions, 2846.
- , osmosis of, 1766.
- , osmotic pressure measurements of, 1750.
- , oxalic acid for coloring, 1896.
- , oxalic acid in decomposition of, 1604.
- , oxalic acid in saponification of, 1665.
- , oxypyruvic acid from, 16.
- , packing, 2270.
- , paint remover containing, 2567.
- , papaverine acetate as preservative of, 2846.
- , papaverine as preservative of, 2846.
- , paper, 532, 2033.
- , —, bleaching, 2071.
- , —, color of, 533.
- , —, manufacture of, centrifugal, 1963.
- , —, —, Emmens process, 2048.
- , —, —, Hyatt process, 2038.
- , —, —, Mowbray method, 2034.
- , —, —, Müller-Jacobs method, 2047.
- , —, —, Schüpphaus-White process, 2034.
- , —, —, Stains method, 2047.
- , —, —, Swan apparatus, 2046.
- , —, —, Tribouillet process, 2037.
- , —, —, washing, 2076.
- , paraform and, 2794.
- , paraldehyde as solvent of, 2543.
- , parapectic acid, in decomposition of, 1604.
- , patent leather coating of, 2909.
- , pectic acid in decomposition of, 1604.

- Cellulose nitrate, pentacetyllevulose hepta-acetate as solvent of, 2549.
- , pentacetyllevulose mono-acetate as solvent of, 2549.
- , pentacetyllevulose octo-acetate as solvent of, 2549.
- , pentacetyllevulose tetra-acetate as solvent of, 2549.
- , pepsin activity in presence of, 1770.
- , perchlor-, 2955.
- , percussion caps of, 2981.
- , percussion cap protector of, 1590.
- , permeability of, 1769, 1770.
- , —, for saline solutions, 1768.
- , pharmaceutical, 1588, 2780.
- , —, description of, 2790.
- , —, manufacture of, 2889.
- , Pharmacopeal, 1694.
- , —, manufacture of, 1695.
- , phenanthrene as solvent of, 2540.
- , phenanthrylmethyl ether as solvent of, 2546.
- , phenetol as solvent of, 2543.
- , phenylacetamide as solvent of, 2545.
- , phenylaceto-2-naphthalide as solvent of, 2552.
- , phenyl acetylsalicylate as solvent of, 2537.
- , phenyl anilid as solvent of, 2540.
- , phenyl anilid phosphate as solvent of, 2540.
- , phenyl benzoate as solvent of, 2538.
- , phenylbenzyl ether as solvent of, 2546.
- , phenyl-carbamide as solvent of, 2544.
- , phenylmethyl carbamide as solvent of, 2544.
- , phenyl carbonate as solvent of, 2540, 2541.
- , phenyl citrate as solvent of, 2541.
- , phenyl formate as solvent of, 2541.
- , phenyl glycid as solvent of, 2537.
- , phenylhydrazine as solvent of, 1679.
- , phenyl malate as solvent of, 2541.
- , phenyl phosphate as solvent of, 2540.
- , phenylphosphoric diethyl anilid as solvent of, 2540.
- , phenylphosphoric diethyl ester as solvent of, 2540.
- , phenylphosphoric dicresyl anilid as solvent of, 2540.
- , phenylphosphoric dicresyl ester as solvent of, 2540.
- Cellulose nitrate, phenylphosphoric dimethylanilid as solvent of, 2540.
- , phenylphosphoric dimethyl ester as solvent of, 2540.
- , phenylphosphoric dinaphthyl anilid as solvent of, 2540.
- , phenylphosphoric dinaphthyl ester as solvent of, 2540.
- , phenylphosphoric diphenyl anilid as solvent of, 2540.
- , phenylphosphoric diphenyl ester as solvent of, 2540.
- , phenyl propionate as solvent of, 2541.
- , phenyl salicylate as solvent of, 2538.
- , phenyl tartrate as solvent of, 2541.
- , phenyl thiophosphate as solvent of, 2540.
- , phenyl p-toluenesulfethylanilid as solvent of, 2546.
- , phenyl p-toluenesulfonate as solvent of, 2546.
- , phenyl urca as solvent of, 2546.
- , phenyl urethane as solvent of, 2546.
- , phosphorus oxychloride and, 1619.
- , phosphorus pentachloride and, 1619.
- , phosphorus trichloride and, 1619.
- , photographic, see also *Collodion photographic*.
- , —, solvents of, 2804.
- , —, stability of, 2804.
- , photolytic decomposition of, 1763.
- , photomechanical uses of, 2998.
- , photoxylographic processes employing, 2915.
- , plant, acid disposal, 1914.
- , —, acid mixing house, 1919.
- , —, acid storage, 1919.
- , —, building construction, 1914.
- , —, climate for location of, 1914.
- , —, construction, 1912.
- , —, cotton dryhouse, 1918.
- , —, cotton picker house, 1916.
- , —, danger buildings, construction 1914.
- , —, electricity required, 1914.
- , —, lay out, 1912.
- , —, lighting, 1915.
- , —, nitrating area, 1918.
- , —, nitrocotton stabilizing, 1921.
- , —, nitrocotton storage, 1921.
- , —, 1924.
- , —, roaching section, 1921.
- , —, sewage, 1913.



- Cellulose nitrate, plant, power, 1914.  
 —, —, site, 1920.  
 —, —, steam required, 1941.  
 —, —, topography, 1912.  
 —, —, water, for, 1913.  
 —, plastics, dyeing, 1894.  
 —, plastic of mica and, 1634.  
 —, plastic of nitroglucose and, 1855.  
 —, plugs, drying, 2153.  
 —, poaching, 2098.  
 —, —, piping, 2102.  
 —, —, stirring arrangement, 2098.  
 —, polarimetric differentiation, 1760, 1761.  
 —, polariscopic appearance of, 1757.  
 —, polarization-microscopical examination of, 1765.  
 —, polka dots on socks with, 2616.  
 —, polychloramidines as solvent of, 2544.  
 —, positives, 2848.  
 —, potassium cantharidate with, 2794.  
 —, potassium chromate for coloring, 1896.  
 —, potassium ferrocyanide for coloring, 1896.  
 —, potassium iodide for coloring, 1896.  
 —, powdering, 1898, 2246.  
 —, powder bags of, 2981.  
 —, powder cases of, 2981.  
 —, powders, action ultra-violet light on, 1714.  
 —, powders, classification, 2942.  
 —, —, decomposition of, 2938.  
 —, —, nitroglycerol and, 2928.  
 —, precipitated, 2802.  
 —, precipitating, 1884, 1885, 1896, 1898.  
 —, preservation vegetable parchment with, 2574.  
 —, preservatives, 2846.  
 —, preserving eggs by, 2599.  
 —, preserving fabrics with, 2612.  
 —, preserving metal work with, 2574.  
 —, preserving natural flowers by, 2599.  
 —, pressing, 2102.  
 —, primers of, 2176, 2981.  
 —, primers, drying, 2153.  
 —, —, specifications for, 2184.  
 —, —, fulminate and, 1591.  
 —, —, *see Cellulose nitrate, blocks.*  
 —, printing on fabrics with, 2616.  
 —, printing with, 2863.  
 —, prism, 2186.  
 —, products of combustion of, 1794.  
 —, prolamin as solvent of, 2550.  
 Cellulose nitrate, properties of, 1897.  
 —, propyl acetylsalicylate as solvent of, 2537.  
 —, propyl carbamate as solvent of, 2538.  
 —, propyl carbanilate as solvent of, 2537.  
 —, propyl carbonate as solvent of, 2536.  
 —, propyl oleate as solvent of, 2536.  
 —, propyl oxalate as solvent of, 2536.  
 —, propyl oxamate as solvent of, 2536.  
 —, propyl palmitate as solvent of, 2536.  
 —, propyl stearate as solvent of, 2536.  
 —, protecting rock crystal by, 1762.  
 —, proteids as solvent of, 2550.  
 —, protocatechuic aldehyde as solvent of, 2548.  
 —, pyraline activity in presence of, 1770.  
 —, pulegone as solvent of, 2543.  
 —, pulp, stability, determining, 2330.  
 —, pulped, settling, 2095.  
 —, pulping, 2083.  
 —, —, Abel's work, 1599.  
 —, —, Abel method, 2063.  
 —, —, acetone, to facilitate, 2090.  
 —, —, auxiliary refining engine, 2094.  
 —, —, effect of, on solubility, 2090.  
 —, —, efficiency of, 2090.  
 —, —, excessive, 2090.  
 —, —, machine efficiency, 2090.  
 —, —, Milne refiner for, 2092.  
 —, —, pulp refiners for, 2092.  
 —, —, Tonkin method, 1604.  
 —, purifying, boiling for, 2071.  
 —, —, by dialysis, 1769.  
 —, —, electro-magnets for, 2104.  
 —, —, mechanical, 2102.  
 —, —, precipitating, 1599.  
 —, —, preliminary, 2071.  
 —, pyridine as gelatinizer of, 1679.  
 —, pyrocatechol as solvent of, 2550.  
 —, pyrocatechol diethyl ether as solvent of, 2543.  
 —, pyrogallol and, 2792.  
 —, pyrogallol as emulsion preservative of, 2846.  
 —, pyrogallol as solvent of, 2550.  
 —, pyrotechnic containing, 1617, 2883.  
 —, pyrotechnic serpentine, 1639.  
 —, quills, artificial, 2610.  
 —, quinidine as emulsion preservative of, 2846.  
 —, quinoline acetate as emulsion preservative of, 2846.

- Cellulose nitrate, quinone as solvent of, 2543.  
 —, reclaiming, 2068.  
 —, —, by settling, 2068.  
 —, recovery of, 1884.  
 —, recovery, settling apparatus for, 2067.  
 —, recovery of waste, 2068.  
 —, reducing, 1676, 1899.  
 —, —, with ferrous chloride, 47, 1667.  
 —, reducing inflammability, 1704.  
 —, —, theory of, 1791.  
 —, refraction of, 1760.  
 —, refraction, double, 1765.  
 —, removal foreign matter, 2102.  
 —, removing unstable bodies by alcohol, 1715.  
 —, rendering bulky, 2253.  
 —, rendering paper airproof by, 2616.  
 —, rendering porous, 2253.  
 —, rennet activity in presence of, 1770.  
 —, resisting cotton colors with, 1888.  
 —, resins as emulsion preservative of, 2847.  
 —, resorcinol as solvent of, 2550.  
 —, resorcinol diacetate as solvent of, 2539.  
 —, rosin oil lacquer containing, 2503.  
 —, rosin soaps as solvents of, 2541.  
 —, rubber and, 2925.  
 —, rubber substitutes, of, 2599.  
 —, rubber with as lacquer, 2593.  
 —, rubifacients with, 2793.  
 —, saccharose hepta-acetate as solvent of, 2549.  
 —, saccharose mono-acetate as solvent of, 2549.  
 —, saccharose octo-acetate as solvent of, 2549.  
 —, saccharose tetra-acetate as solvent of, 2549.  
 —, sacs of, 1768, 2784.  
 —, sacs, bacteriological work with, 2785.  
 —, —, culture growth in, 2785.  
 —, safe-lights of, 2875.  
 —, salicylic acid, 2794.  
 —, salicylic acid for coloring, 1806.  
 —, salipyrin as solvent of, 2545.  
 —, salol and, 2791.  
 —, salol as solvent of, 2538.  
 —, sandarac lacquer containing, 2502.  
 —, sand in, removal, 2102.  
 —, santalol ethoxyacetate as solvent of, 2539.  
 —, santalol ethoxychloracetate as solvent of, 2539.  
 —, santalol methoxyacetate as solvent of, 2539.  
 —, santalol nitrate, santalol methoxychloracetate as solvent of, 2539.  
 —, saponification of, 1664.  
 —, saponification, products formed, 2316.  
 —, —, speed of, 1700.  
 —, saponifying, calcium carbonate for, 2182.  
 —, savin and, 2792.  
 —, Schreiner finish on textiles by, 2599.  
 —, screening, 3112.  
 —, —, Witham plate, 2113.  
 —, screening house wave-all, 2219.  
 —, separating acid from, 1417.  
 —, separation cellulose from, 1666.  
 —, separation from cellulose by pyridine, 1680.  
 —, settling, 2095.  
 —, shellac and, 2574.  
 —, shellac as lacquer with, 2593.  
 —, shellac as emulsion preservative of, 2847.  
 —, shellac as solvent of, 2541.  
 —, shellac as varnish for, 1605.  
 —, silicated, 1615.  
 —, silver acetate for coloring, 1896.  
 —, silver chromate for coloring, 1896.  
 —, silver iodine for coloring, 1896.  
 —, silver malate as emulsion preservative of, 2847.  
 —, silver nitrate for coloring, 1896.  
 —, silver sulfide for coloring, 1896.  
 —, silvering mirrors with, 2573.  
 —, size for, 2573.  
 —, skins coated with, 2618.  
 —, skins treated with, 2381.  
 —, slabs, impurities in, 2184.  
 —, —, nitrogen in, 2184.  
 —, —, organic matter in, 2184.  
 —, —, specifications for, 2184, 2208.  
 —, smokeless powders of, 2921.  
 —, sodium alcoholate as solvent of, 1666.  
 —, sodium phosphate for coloring, 1896.  
 —, sodium stannite, as solvent of, 1581.  
 —, sodium sulfide for coloring, 1896.  
 —, softening, glycerol for, 2791.  
 —, sole leather coating, 2009.  
 —, solid alcohol with, 2598.  
 —, solubility, 1720.  
 —, —, action alcohol-ether on, 2291.  
 —, —, in ammonium hydroxide, 1728.  
 —, —, in cuprammonium, 1728.  
 —, —, determining, 2287.  
 —, —, English method, 2288.

- Cellulose nitrate, solubility, determining, German method, 2290.
- , —, —, Lunge method, 2296.
- , —, —, Mallison method, 2289.
- , —, —, Quinan method, 2290.
- , —, —, Schrimpf method, 2293.
- , —, —, U. S. method, 2289.
- , —, —, U. S. Ordnance method, 2372.
- , —, —, English method, determining, 2288.
- , —, —, in ether, 1584.
- , —, —, factor of, 2372.
- , —, —, solubility of, increasing, 43, 1727.
- , —, —, modifying, 1725.
- , —, —, solubility, modifying, by pressure, 1727.
- , —, —, testing, 2264, 2266.
- , —, —, variations in, 1727.
- , —, —, varying by acid addition, 1727.
- , —, —, soluble, 1721.
- , —, —, determining, 2287, 2374.
- , —, —, solutions, filtration of, 2559.
- , —, —, viscosity of, 1729.
- , —, —, in acetone, 1663.
- , —, —, solvent, chloral, 2384.
- , —, —, dinitrobenzene, 2384.
- , —, —, extracting impurities in, 2081.
- , —, —, solvent for, formic acid, 23.
- , —, —, solvent, mononitrobenzene, 2384.
- , —, —, phosphorus chlorides, 1619.
- , —, —, sulfurous acid and camphor, 2384.
- , —, —, solvents, 1280, 1720, 2382, 2383.
- Cellulose nitrate solvents for, see also the individual solvents.
- , —, —, solvent recovery from, 2841.
- , —, —, solvent removal, 2934.
- , —, —, "SO<sub>2</sub>" content of, determining, 2300.
- , —, —, soya bean as solvent of, 2551.
- , —, —, sparking of, 2153.
- , —, —, specific gravity, 1757.
- , —, —, determining, 2306.
- , —, —, specifications, 2336.
- , —, —, alkalinity, 2266, 2269.
- , —, —, boiling, 2265.
- , —, —, British, 2265, 2268.
- , —, —, French, 2267.
- , —, —, nitrogen in, 2268.
- , —, —, Great Britain, 2373.
- , —, —, heat test, 2269.
- , —, —, mineral matter, 2269.
- , —, —, nitrogen, 2266.
- , —, —, quality, 2260.
- , —, —, solubility, 2260, 2266.
- , —, —, sulfate, 2267, 2375.
- , —, —, U. S., 2264.
- Cellulose nitrate, specifications, U. S. Navy, 2258.
- , —, —, spectroscopic appearance of, 1761, 1762.
- , —, —, spectroscopic examination of, 1617.
- , —, —, speed transmission explosion waves of, 1794.
- Cellulose nitrate, spent acid in manufacture of, see Spent acid.
- , —, —, spent acid from, recovery, 1442.
- , —, —, split leather coating of, 2609.
- , —, —, spontaneous decomposition of, 1593.
- , —, —, stability of, 1651, 1681, 1700.
- , —, —, Abel investigations, 1607.
- , —, —, amyl acetate for increasing, 1711.
- , —, —, Bergmann and Junk test, 2354.
- , —, —, stability of, determining, 2321.
- , —, —, stability, determining. \*Angeli test, 2367.
- , —, —, British method, 2327.
- , —, —, Egerton test, 2335.
- , —, —, explosion test, 2347.
- , —, —, Guttman test, 2335.
- , —, —, Hoitsema test, 2336.
- , —, —, Holland practice, 2338.
- , —, —, Jacque's method, 2348.
- , —, —, manometric test, 2363.
- , —, —, Moir test, 2335.
- , —, —, Spanish practice, 2338.
- , —, —, Spica method, 2337.
- , —, —, Spica test, 2335.
- , —, —, test paper for, 2329.
- , —, —, U. S. Ordnance method, 2326.
- , —, —, Weber test, 2365.
- , —, —, Weirman test, 2367.
- , —, —, Will apparatus, 2350.
- , —, —, effect bleaching on, 613.
- , —, —, effect fungi on, 1802.
- , —, —, effect heat on, 1713.
- , —, —, effect mercuric chloride on, 1711.
- , —, —, effect oxycellulose on, 614.
- , —, —, effect sulfuric acid on, 1909.
- , —, —, effect ulmic bodies on, 1711.
- , —, —, effect water on, 1711.
- , —, —, fume tests, 2343.
- , —, —, heat test for, masking, 2334.
- , —, —, increasing, 568.
- , —, —, Italian practice, 2340.
- , —, —, Kismiemy investigations, 1706.
- , —, —, laws of, 1706.
- , —, —, Lenk experiments, 1593.
- , —, —, limit state, 1665.
- , —, —, stability of, litmus for indicating, 1621.

- Cellulose nitrate, stability, mercuric chloride as masking, 2302.  
 —, stability, Obermüller test, 2362.  
 —, stability, Ordnance Department 115° test, 2337.  
 —, —, Ordnance 115° test, standards for, 2365.  
 —, —, Robertson and Smith's work, 2341.  
 —, —, Silberrad-Farmer, 1708.  
 —, —, silver vessel test, 2344.  
 —, —, summary, 1747, 1718.  
 —, —, Sy test, 2339, 2347.  
 —, —, testing, Roberston apparatus, 2351.  
 —, —, ultra-violet light, 1714.  
 —, —, Vieille test, 2345.  
 —, —, Will test for, 1704.  
 —, —, stabilization, practical, 2082.  
 —, —, preliminary, 2071.  
 —, —, progress of, 2083.  
 —, —, solvent, 2081.  
 —, —, Stevens method, 2082.  
 —, —, stabilizer, magnesium chloride as, 1681.  
 —, —, stabilizers, 1776, 2941.  
 —, —, nature of, 1719.  
 —, —, stabilizing, 1829.  
 —, —, acetates for, 1703.  
 —, —, alcohol for, 1594.  
 —, —, calcium carbonate for, 1614.  
 —, —, citrates for, 1703.  
 —, —, magnesium carbonate for, 1614.  
 —, —, mineral jelly for, 2951.  
 —, —, du Pont method, 1711.  
 —, —, silicating, 1615.  
 —, —, Soc. anonyme process, 2079.  
 —, —, sodium carbonate for, 1609.  
 —, —, sodium silicate for, 1596, 1597.  
 —, —, superheated water for, 2093.  
 —, —, tartrates for, 1703.  
 —, —, water glass for, 1594, 1606.  
 —, —, zinc chloride for, 2094.  
 —, —, stannous chloride for coloring, 1896.  
 —, —, stannous chloride for reducing inflammability of, 1782.  
 —, —, starch as solvent of, 2542.  
 —, —, static electricity produced by, 1767.  
 —, —, steam decomposition of, 1796.  
 —, —, steaming, centrifugal, 2079.  
 —, —, steapsin activity in presence of, 1770.  
 —, —, stiffening fabrics with, 2612.  
 —, —, storage, buildings for, humidity in, 1925.  
 Cellulose nitrate, storage, changes in, 1709.  
 —, —, deterioration in, 1709, 1710.  
 —, —, lighting protection, 1925.  
 —, —, magazines, ventilation, 1924.  
 —, —, ventilation, 1924.  
 —, —, storage battery envelopes of, 1844, 2598.  
 —, —, storing under water, 1698.  
 —, —, stoving, 1706.  
 —, —, straw, 1803.  
 —, —, properties of, 1805.  
 —, —, straw board manufacture with, 2599.  
 —, —, structureless, 1882, 1883.  
 —, —, styrolene as solvent of, 2536.  
 —, —, submarine cable insulating by, 2598.  
 —, —, sugar combined with, 1620.  
 —, —, suitability of, for lacquers, 1939.  
 —, —, sulfates in, determining, 2300.  
 —, —, —, Caron method, 2302.  
 —, —, —, Hottenroth method, 2302.  
 —, —, —, Kullgren method, 2301.  
 —, —, —, Piest method, 2301.  
 —, —, testing, 2267.  
 —, —, sulfocarbamilid as solvent of, 2545.  
 —, —, sulfocarmine acid as preservative of, 2846.  
 —, —, sulfobenzid as solvent of, 2545.  
 —, —, sulfonal as solvent of, 2545.  
 —, —, sulfuric acid, combined, removal, 2074.  
 —, —, suppleness, increasing by castor oil, 1591.  
 —, —, surfacing rollers by, 2612.  
 —, —, surfacing spindles with, 2612.  
 —, —, swelling, 2253.  
 —, —, takadiastase activity in presence of, 1770.  
 —, —, tannin and morphine as emulsior preservative of, 2846.  
 —, —, tannin as emulsion preservative of, 2846.  
 —, —, tannin for coloring, 1896.  
 —, —, tannobromide, 2795.  
 —, —, temperature of decomposition, 1711, 1712.  
 —, —, testing, 1939.  
 —, —, alkalinity, 2266.  
 —, —, ash in, 2264.  
 —, —, French, 2268.  
 —, —, German test, 2263.  
 —, —, heat test, 2262.  
 —, —, —, U. S. Ordnance method, 2370.  
 —, —, moisture, 2274.  
 —, —, nitration, 2263.

- Cellulose nitrate, testing, nitrogen, 2286.
- , —, sulfates, 2267.
  - , —, U. S. Ordnance methods, 2370.
  - , test papers of, 1776.
  - , tests for, 1613.
  - , terpine as solvent of, 2549.
  - , terpinene as solvent of, 2552.
  - , terpineol as solvent of, 2548, 2549.
  - , terpinyl acetate as solvent of, 2539.
  - , terpinyl diacetate as solvent of, 2539.
  - , terpinyl propionate as solvent of, 2539.
  - , tertiary alcohol urethanes as solvent of, 2552.
  - , tetracetylactose hepta-acetate as solvent of, 2549.
  - , tetracetylactose mono-acetate as solvent of, 2549.
  - , tetracetylactose octo-acetate as solvent of, 2549.
  - , tetracetylactose tetra-acetate as solvent of, 2549.
  - , tetraethylglycol as solvent of, 2537.
  - , tetrahydromethylpropylbenzene as solvent of, 2548.
  - , tetraiodopyrrol and, 2792.
  - , tetramethylnaphthalene as solvent of, 2540.
  - , tetraphenyl-urea as solvent of, 2552.
  - , therapeutic applications of, 2788.
  - , thermal considerations of, 1793.
  - , thermal decomposition of, 1716.
  - , thermoplastic, *see Celluloid*.
  - , thujone as solvent of, 2543.
  - , thymochinon as solvent of, 2549.
  - , thymol and, 2791.
  - , thymol as solvent of, 2549.
  - , tipping cigars with, 2574.
  - , toluene benzylnitrochloride as solvent of, 2540.
  - , toluene bromide as solvent of, 2540.
  - , toluene chloride as solvent of, 2540.
  - , toluene nitrobromide as solvent of, 2540.
  - , toluene nitrochloride as solvent of, 2540.
  - , *p*-toluenesulfonylcyclohexylamine as solvent of, 2545.
  - , *p*-toluenesulfodicyclohexylamine as solvent of, 2548.
  - , *o*-toluylencemethenylamidic as solvent of, 2544.
- Cellulose nitrate, tolyldimethylpyrazolon as solvent of, 2545.
- , tolypyrin as solvent of, 2545.
  - , tolypyrin salicylate as solvent of, 2545.
  - , tolysal as solvent of, 2545.
  - , transparencies with, 2865.
  - , transportation, 1927, 2229.
  - , treating furs with, 2610.
  - , treating ostrich feathers with, 2610.
  - , triacetin as solvent of, 2537.
  - , tri-dimethylcyclohexyl carboxylic acid as solvent of, 2548.
  - , triethyl citrate as solvent of, 2537.
  - , trihydroxybenzene as solvent of, 2550.
  - , trimethylnaphthalene as solvent of, 2539.
  - , trihydroxyglutaric acid in saponification of, 1666.
  - , trinitroanisole as solvent of, 2544.
  - , trinitrophenetol as solvent of, 2544.
  - , trional as solvent of, 2545.
  - , triphenyl phosphate as solvent of, 2540.
  - , trypsin activity in presence of, 1770.
  - , turpentine and, 2574.
  - , turpentine lacquer containing, 2593.
  - , ultra-filtration with films of, 1773.
  - , ultrafiltration through, 1771.
  - , unaltered cellulose in, determining, 2295.
- Cellulose nitrate, ungelatinized, see Cellulose nitrate.*
- , unstable, 1671.
  - , unstable bodies in, removal by alcohol, 1715.
  - , urec. as emulsion preservative of, 2846.
  - , urea as solvent of, 2551.
  - , urea acetate as solvent of, 2551.
  - , urea benzoate as solvent of, 2551.
  - , urea butyrate as solvent of, 2551.
  - , urea formate as solvent of, 2551.
  - , urea naphthoate as solvent of, 2551.
  - , urea nitrate as solvent of, 2551, 2552.
  - , urea oxalate as solvent of, 2552.
  - , urea propionate as solvent of, 2551.
  - , urea salicylate as solvent of, 2551.
  - , urea sulfate as solvent of, 2551.
  - , urea valerate as solvent of, 2551.
  - , urethanes as solvents of, 2546, 2552.

- Cellulose nitrate, urethanes substituted as solvent of, 2544.
- , use, actuating gas engine by, 320.
- , —, in ceramics, 2906.
- , use of, in electrical industries, 2597.
- , —, in spectroscopy, 2912.
- , varnish of, 1590.
- , varnishes, 2903.
- , vat boiling, 2241.
- , velocity of detonation, 1795.
- , Venice turpentine lacquer containing, 2592.
- , veratrine with, 2794.
- , veratrol as solvent of, 2543.
- , vesicants with, 2793.
- , vetivenol acetate as solvent of, 2537.
- , vinyl acetate as solvent of, 2549.
- , vinyl chloracetate as solvent of, 2549.
- , viscosity of, 1677, 1729.
- , viscosity, acetoethyl-o-toluidide solution of, 1737.
- , —, acetone solutions, 1663, 1747.
- , —, alcoholic camphor, 1736.
- , —, amyl acetate solution of, 1737.
- , —, anisol-methyl alcohol solution of, 1737.
- , —, Baker's work, 1746.
- , —, ball fall method, 2285.
- , —, benzyl alcohol-ethyl ether solution of, 1737.
- , —, in camphor-alcohol, 1735.
- , —, determining, 2275, 2284.
- , —, —, Ostwald viscosimeter, 2282.
- , —, diminution, 1733.
- , —, effect alcohol on, 1740.
- , —, effect aluminium chloride on, 1739.
- , —, effect benzene on, 1740.
- , —, effect benzine on, 1743.
- , —, effect boric acid on, 1739.
- , —, effect camphor on, 1735.
- , —, effect citric acid on, 1789.
- , —, effect electric current on, 1738.
- , —, effect moisture in solvents on, 1740.
- , —, effect phenol on, 1738.
- , —, effect pulping on, 1657.
- , —, effect resins on, 1739.
- , —, effect sodium formate on, 1739.
- , —, effect tartaric acid on, 1739.
- , —, effect urea on, 1735.
- , —, effect washing on, 1657.
- , —, ether-alcohol solutions of, 1744, 1931.
- Cellulose nitrate, viscosity, ethyl acetate solution of, 1737.
- , —, ethyl alcohol-ethyl ether solution of, 1737.
- , —, ethyl ether-benzyl alcohol solution of, 1737.
- , —, ethyl ether-ethyl alcohol solution of, 1737.
- , —, ethyl ether-methyl alcohol solution of, 1737.
- , —, ethyl formate solution of, 1737.
- , —, ethyl phthalate solution of, 1737.
- , —, ethyl propionate solution of, 1737.
- , —, ethyl o-tolylethylcarbamate solution of, 1737.
- , —, factor, 1938.
- , —, factors governing, 1732, 1733.
- , —, Grefna product, 1743.
- , —, lowering, 1755.
- , —, methyl acetate solution of, 1737.
- , —, methyl alcohol solution of, 1737.
- , —, methyl alcohol-anisol solution of, 1737.
- , —, methyl alcohol ethyl ether solution of, 1737.
- , —, modifying, 1740.
- , —, preserving, boric acid for, 1786, 1787.
- , —, propyl acetate solution of, 1737.
- , —, quantitative theory, 1749.
- , —, viscosity of, reducing, 43.
- , —, viscosity, relation of, to constitution, 1735.
- Cellulose nitrate, viscosity, *see also* Viscosity.
- , vulcanized fiber of, 2655.
- , washing, 2098.
- , —, alkali for, 2066.
- , —, centrifugal, 2079.
- , —, Clark method, 2066.
- , —, compressed air for, 2063.
- , —, continuous, 2079.
- , —, displacement, 2079.
- , —, Dreger apparatus, 2068.
- , —, Flack apparatus, 2063.
- , —, flotation, 2065.
- , —, Heine, apparatus, 2064.
- , —, Loomis apparatus, 2063.
- , —, du Pont method, 2078.
- , —, pressure, 2063, 2078.
- , —, solvent extraction, 2081.
- , —, waste acids from, recovery, 1442
- Cellulose nitrate, waste acid in manufacture of, *see* Spent acid.
- , waste reclaiming, 2068.

- Cellulose nitrate<sup>f</sup> waterproofing, 1618, 1624, 1754, 1887.  
 —, —, beeswax for, 1618.  
 —, —, nitrated resin for, 1754.  
 —, —, paraffin for, 1618.  
 —, —, rubber for, 1618.  
 —, waterproofing with, 2574.  
 —, waterproofing cartridges with, 1618, 1623, 1889, 2573.  
 —, waterproofing casks with, 2612.  
 —, waterproofing compositions of, 2610.  
 —, waterproofing flower stems by, 2599.  
 —, waterproofing linen by, 3057.  
 —, waterproofing pictures with, 2612.  
 —, wave length absorption, 1762.  
 —, wet, explosion of, 1700.  
 —, —, explosion with mercury fulminate, 1796.  
 —, —, transporting, 2229.  
 —, wheel tires containing, 2599.  
 —, white soap as emulsion preservative of, 2847.  
 —, wood, 317.  
 —, wood pulp for, 285.  
 —, X-ray screens of, 2912.  
 —, xylamide as solvent of, 2548.  
 —, xylene benzylnitrochloride as solvent of, 2540.  
 —, xylene bromide as solvent of, 2540.  
 —, xylene chloride as solvent of, 2540.  
 —, xylene nitrobromide as solvent of, 2540.  
 —, xylene nitrochloride as solvent of, 2540.  
 —, yield from cotton, 573.  
 —, yield, determining, 2159.  
 —, zein as solvent of, 2550.  
 —, zinc acetate for coloring, 1896.  
 —, zinc sulfide for coloring, 1896.  
*Cellulose nitrate*, see also *Celluloid*.  
 Cellulose nitrites, 1719, 1905.  
 Cellulose nitroacetate, 3019.  
*Cellulose nitroacetates*, see also *Cellulose acetonitrates*.  
*Cellulose nitrobenzoate*, see *Cellulose benzonitrate*.  
 Cellulose nitrobenzoyl nitrate, 1907.  
*Cellulose nitrosulfuric esters*, see *Cellulose sulfuric acid esters*.  
 Cellulose pentanitrate, 1647, 1648.  
 Cellulose peroxide, 151, 154, 155.  
 Cellulose phenylcarbamates, 107.  
 Cellulose phenylisocyanate, 107.  
 Cellulose phthalate, 3019.  
 Cellulose plastics, 335.  
 Cellulose propionate, 3018.  
*Cellulose propionacetate*, see *Cellulose acetopropionate*.  
 Cellulose-S, 2021.  
 Cellulose substitute, 567.  
*Cellulose sulfacetate*, see also *Cellulose acetosulfate*.  
 Cellulose sulfates, 324.  
*Cellulose sulfocarbonate*, see also *Cellulose xanthate*.  
 Cellulose sulfo-esters, 2300.  
 Cellulose sulfonic acid, 2071.  
 Cellulose sulfonic esters, 1909.  
 Cellulose sulfonitrilic esters, 2071.  
 Cellulose sulfuric acid, 96, 201.  
 Cellulose sulfuric acid, calcium salts of, 97.  
 Cellulose-sulfuric acid, precipitation of, 96.  
 Cellulose tetracetate, 18.  
 Cellulose tetranitrate, 1647, 1649, 1696.  
 Cellulose tetrasulfate, 99.  
 Cellulose thiocarbonate, 19, 3063.  
 —, optical properties of, 1759.  
*Cellulose thiocarbonate*, see also *Viscose*.  
 Cellulose toluene-*p*-sulfonate, 1909.  
 Cellulose triacetate, 193.  
 —, action polarized light on, 1760.  
 —, optical activity of, 1760.  
 —, properties of, 189.  
*Cellulose triacetate*, see also *Cellulose acetate*.  
 Cellulose trinitrate, 1647, 1649.  
 Cellulose vournasos, 1879.  
 Cellulose xanthate, 2382, 3062.  
 —, formula of, 23.  
 —, wood pulp for, 285.  
 —, viscosity of, 385.  
*Cellulose xanthate*, see also *Viscose*.  
*Cellulose xanthogenate*, see *Cellulose xanthate*.  
 Cellulosine, 2669.  
 Cellulotype, 2746.  
 Cellutype, 2746.  
 Celluvert, 104, 2602.  
 Celluxose, 662.  
 Cement, American, 1398.  
 —, cellulose nitrate for, 2577.  
 —, celluloid, 2577, 2916.  
 Cements, camphene in, 2535.  
 —, celluloid, 2691.  
 —, cyprammonium cellulose for, 78.  
 —, leather, celluloid lacquers for, 2579.  
 —, —, cellulose nitrate, 2617.  
 —, "neat," 1915.  
 —, paper, cellulose nitrate, 2617.  
 —, textile, cellulose nitrate, 2617.

- Centigrade, Fahrenheit • equivalent, (table), 1542.  
 Centralite I, cellulose ester solvent, 2552.  
 Centralite II, cellulose ester solvent, 2552.  
 Centrifugal, alcohol dehydrating, 1953.  
 —, alcoholizing, 1953, 2126.  
 —, brakes for, 1955.  
 —, construction of, 1954.  
 —, dehydrating, alcohol, Selwig-Lange, 2126.  
 —, —, continuous, 2123.  
 —, —, Kaehl, 2118.  
 —, —, Müller, 2123.  
 —, —, Robertson apparatus, 2122.  
 —, —, Tolhurst, 2118.  
 —, exhausting, 1853.  
 —, finishing, 1969.  
 —, Gebrüder Heine, 1954.  
 —, guncotton steam, 2079.  
 —, Haubold, 1954, 1976.  
 —, hydro-extracting, 1953.  
 —, nitrating, 1953.  
 —, —, continuously operating, 1978.  
 —, —, valves for, 1878.  
 —, safety appliances for, 1953.  
 —, Selwig & Lange, 1956.  
 —, steam, 2079.  
 —, steaming, 1953.  
 —, stoneware, 1978.  
 —, tipping, Delpy, 1975.  
 Centennial spirits, 2409.  
 Cephalin allyl ether, 2394.  
 Cephalin ethyl ether, 2394.  
 Cephalotomy, cellulose nitrate in treatment of, 2788.  
 Ceramics, cellulose nitrate in, 2905.  
 —, collodion in, 2905.  
 Ceratherm, 765.  
 Ceresin, 2952, 2964.  
 —, paint remover containing, 2565.  
 Ceria, see *Cerium oxide*.  
 —, oxidizing ammonia by, 896.  
 Cerin, see *Cerotic acid*.  
 Cerium carbide, oxidizing ammonia by, 908.  
 Cerium, catalyst, 917.  
 Cerium (ous) chloride, dissolving cellulose by, 109.  
 Cerium nitrate, 938.  
 Cerium nitride, catalyst, 917.  
 Cerium oxide, catalyst of, 1111, 1122.  
 —, catalytic action of, 1158.  
 Cerium, salts of, action on cellulose, 112.  
 • Cerotic acid, 535.  
 • *Cerotic acid*, see *Cerotic acid*.  
 Cerous, see *Cerium*.  
 Cetin, see *Sbermaceli*.  
 Cetaric acid, see *Cetrarin*.  
 Cetyl palmitate, reducing inflammability cellulose nitrate by, 1785.  
 Cetyllic alcohol, see *Cetyl alcohol*.  
 Chaffedony, imitating, celluloid 2722.  
 Chalcopyrites, 1077.  
 Chamber acid, 1000.  
 —, impurities in, 1337.  
 Chamber crystals, 1236, 1255.  
 —, uses of, 1305.  
 Chamber crystals, see also *Nitrosulfonic acid*.  
 Chamber crystals, see also *Nitrosyl sulfate*.  
 Chamber gases, composition of, 1237.  
 Chamber process, acid mist condensation, 1251.  
 —, air supply to, 1237.  
 —, analysis exit gases, 1252.  
 —, contact process combined, 1288.  
 —, gas circulation, mechanics, 1249.  
 —, gas distribution, 1247.  
 —, exit gases, acidity of, 1252.  
 —, —, analysis of, 1252.  
 —, intensive working, 1242.  
 —, Gay-Lussac tower, 1262.  
 —, nitrogen in, analysis of, 1253.  
 —, operating irregularities, 1246.  
 —, recovery nitrogen compounds, 1261.  
 —, speed acid formation, 1247.  
 —, sprays in, 1235.  
 —, sulfur in, analysis of, 1253.  
 —, testing gases in, 1248.  
 —, theory of, 1254.  
 —, working temperatures of, 1240.  
 Chamber process, see also *Sulfuric acid, manufacture, Chamber process*.  
 Chamberland candle, 1772.  
 Chambers, Moritz, 1212.  
 —, reaction, packing for, 1267.  
 Chamois, artificial, cellulose nitrate for, 2609.  
 Champeve enamel, imitating, celluloid for, 2722.  
 Chancel sulfurimeter, 1034.  
 Chance-Claus process, 1025, 1029.  
 Charcoal, 2972.  
 Chardonnet silk, 2621.  
 Chardonnet silk, see also *ruamenis, artificial, Chardonnet*.  
 Check plumper, celluloid, 2703.  
 Chess, celluloid, 2728.  
 Chestnut, hydrolyzing, 204.  
 Champagne, dry plate preservative, 2838.



- Chilblains, cellulose nitrate as excipient in, 2794.  
*Chile saltpeter*, see *Nitr.*, *Sodium nitrate*.  
*Chili saltpeter*, see *Sodium nitrate*.  
*Chilian nitrate*, see *Sodium nitrate*.  
 —, analysis, 725.  
 —, recovery from bags, 739.  
 Chilworth smokeless sporting powder, 2969.  
 Chin, celluloid for preventing double, 2703.  
 China, decorating, cellulose nitrate for, 2904.  
 China grass, nitrating, 1875.  
 China jute, 246.  
*Chinaldine* see *Quinaldine*.  
 China wadding, 646.  
 China wood oil, 2963.  
 —, lacquer of cellulose nitrate and, 2593.  
 Chinese cotton, constants of, 506.  
 —, diameter of fibers, 508.  
 —, length of fibers, 509.  
 Chinese paints, 2586.  
 Chinese wax, paint remover containing, 2565.  
*Chinese wood oil*, see *Tung oil*.  
 Chinese wood oil, paint remover containing, 2567.  
*Chinic acid*, see *(Quinic acid)*.  
*Chinolic acid*, see *(Quinolinic acid)*.  
 Chinoline blue, 2874.  
*Chinone*, see *(Quinone)*.  
*Chinopiepic acid*, see *(Quinopiepic acid)*.  
 Chitin, nitrating, 1882.  
*tri-Chloracetaldehyde*, 424.  
*Chloracetanilid*, cellulose ester solvent, 2539.  
 Chloracetic acid, action on cellulose, 3014.  
*Chloracetic acid*, see also *Mono-, Di-, and Tri-chloracetic acid*.  
 Chloracetone, cellulose acetate solvent, 3040.  
 Chloral, camphor with, 2717.  
 —, cellulose ester solvent, 2543.  
 —, cellulose nitrate solvent, 2384.  
 Chloral alcoholate, cellulose acetate solvent, 3026, 3029.  
*Chloral alkylolide*, see *Chloral alcoholate*.  
*Chloralantipyryne*, see *Hypnal*.  
*Chloroformamide*, see *Chloralamide*.  
 Chloral hydrate, 411.  
 —, action of, on starch, 441.  
 —, addition to, iodizer, 2812.  
 —, camphor and, 2517.  
 —, cellulose solvent, 2384.  
 Chloral hydrate, cellulose acetate solvent, 3029.  
 —, cellulose nitrate solvent, 2384.  
 —, diminishing inflammability cellulose nitrate by, 1931.  
 Chloral-phenol, cellulose acetate solvent, 3029.  
*Chloral urethane*, see *Urethane*, *chloral*.  
 Chloramine reaction, 349.  
 Chloramines, 523, 598.  
*Chloramyl*, see *Amyl chloride*.  
 Chloramyl alcohol, 2385.  
 Chloramyl thloracetate, 2385.  
 Chloraniline, nitrostarch stabilizer, 1828.  
 —, paint remover containing, 2566.  
 Chloroplastids, 403.  
 Chlorates, 2947.  
 —, alkaline, action of, on cellulose, 162.  
 Chlorbenzene, dissolving by nitrogen tetroxide, 720.  
 —, paint remover containing, 2567.  
*p-Chlorbenzenesulfanilid*, cellulose ester solvent, 2547.  
*p-Chlorbenzenesulfo-b-naphthol*, cellulose ester solvent, 2547.  
*Chlorobenzal*, see *Benzylidene chloride*.  
*Chlorbenzol*, see *Chlorbenzene*.  
 Chlorbenzyl alcohol, cellulose acetate solvent, 3026.  
*Chlorbromopropane*, see *Trimethylene chlorobromide*.  
*Chlorbutylene hydroxide*, see *Epichlorhydrin*.  
*Chlordextrose pentacetate*, see *Pentacetylchlordextrose*.  
*Chlordextrose tetracetate*, see *Tetracetylchlordextrose*.  
 penta Chlorethane, dissolving by nitrogen tetroxide, 720.  
 Chlor (mono)ethyl alcohol, see *Ethylene chlorhydrin*.  
 Chlorethyl cinnamate, 2393.  
 —, cellulose ester solvent, 2537.  
*Chlorethylideneimide (tri)*, see *Chloralimide*.  
 Chlorhydrin, cellulose ester solvent, 2543.  
 —, dissolving saccharose in, 1894.  
 —, manufacture of, electrolytic, 3034.  
 —, nitrating, 1849.  
 Chloric acid, modifying starch by, 428.  
*Chloride of lime*, see also *Calcium hypochlorite*, *Lime chlorinated*.  
*Chlorinated acetophenone*, see *Acetophenone, chlorinated*.  
*Chlorinated stearic acid*, see *Stearic*

- acid, chlorinated.
- Chlorine, absorption of, by cotton, 529.
- , action of, on cellulose, 158.
- , bleaching cellulose nitrate by, 2069.
- , manufacture of, recovery nitric acid in, 947.
- , nitric acid in manufacture of, recovery, 947.
- Chlormethane*, see *Methyl chloride*.
- Chlormethane (tri)*, see *Chloroform*.
- Chlormethyl cinnamate*, 2393.
- Chlormethylfurfural*, 19, 20, 185, 186, 211.
- Chlormethylfurfuraldehyde*, see *Chlormethylfurfural*.
- Chlornaphthyl acetate*, cellulose ester solvent, 2539.
- Chlornitrobenzene*, 2304.
- 6-Chlornitrobenzene*, 1686.
- Chlornitromethane (tri)*, see *Chloropicrin*.
- Chlornitrosaccharose*, 1849.
- Chlorocitrate emulsion*, see *Emulsion chlorocitrate*.
- Chloroform*, addition to, iodizer, 2812.
- , alcohol recovery by, 2558.
- , dissolving nitroerythrite by, 1860.
- , dissolving by nitrogen tetroxide, 720.
- , ether recovery by, 2558.
- , extracting impurities in cellulose nitrate by, 2081.
- , manufacture of acetone for, 2400.
- , nitrosaccharose solvent, 1850.
- , solubility acetic acid in, 2999.
- Chlorolignin*, 357.
- Chlorophyl*, 389, 394, 401, 405, 2870, 2871.
- Chloroplast*, 394.
- Chloroplatinic acid*, 1153.
- Chloroxypropyl cinnamate*, 2393.
- , cellulose ester solvent, 2537.
- $\alpha$ -Chloropentane*, see *Amyl chloride (n)*.
- penta-Chlorpropionic aldehyde*, 424.
- Chlorpropionic acid*, action on cellulose, 3014.
- Chloropropyleneglycol*, see *Monochlorhydrin*.
- Chloropropylene oxide*, see *Epichlorhydrin*.
- (tri) Chlorpyrogallol*, 252.
- p-Chlorsulfamid*, cellulose ester solvent, 2547.
- Chlorosulfonic acid*, formylating cellulose in presence of, 3016.
- Chlortoluidine*, nitrostarch stabilizer, 1828.
- Chocolate*, phonograph records of, 2734.
- Cholalic acid*, 410.
- Cholestrin*, 46, 498.
- Cholestrin*, see also *Cholesterol*.
- Chondrin*, reducing inflammability cellulose nitrate by, 1790.
- Chromates*, 2948.
- Chrome liquors*, niter cake in, 807.
- Chromic*, see *Chromium*.
- Chromic acid*, action of, on starch, 425.
- , oxidation of cellulose with, 161, 166.
- , oxidizing wood pulp with, 273.
- Chromite*, 1278.
- Chromium*, catalyst, 916.
- , catalyst of oxides of, 702.
- , catalytic action of, 1119.
- , fixation nitrogen with, 689.
- , oxidizing ammonia by, 905.
- Chromium bromide*, reducing inflammability cellulose nitrate by, 1779.
- Chromium (ic) chloride*, coloring celluloid by, 1896.
- , dissolving cellulose by, 109.
- Chromium chloride*, reducing inflammability cellulose nitrate by, 1779.
- Chromium (ic) hydroxide*, coloring celluloid by, 1896.
- Chromium iodide*, reducing inflammability cellulose nitrate by, 1779.
- Chromium oxide*, 912.
- , action of, on cellulose, 161.
- , catalyst, 917, 1111, 1119, 1401.
- Chromium (ic) oxide*, catalytic action of, 1103, 1158.
- Chromium oxide*, manufacture of, 1120.
- , reducing inflammability cellulose nitrate by, 1780.
- Chromium stannate*, catalyst, 1120.
- Chromo-gelatin process*, 2799.
- Chromotype printing*, 2863.
- Chromous salts*, dissolving cellulose in cuprammonia by, 71.
- Chrysammic acid*, see *Chrysammic acid*.
- Chrysarobin*, cellulose nitrate and, 2792.
- Chrysoidin*, 2875.
- Chrysoidine orange*, see *Diamino-azobenzene hydrochloride*.
- Chrysophanic acid*, see *Chrysarobin*.
- Cibalite*, 2970.
- Ciculine*, see *Coniine*.
- Cigar holders*, celluloid for, 2696.
- Cigars*, tipping, cellulose nitrate for, 2574.
- Cincholepidine*, see *Lepidine*.
- Cinchonine*, preserving collodion

- emulsions by, 2846.  
 Cinchonine, diminishing inflammability cellulose nitrate by, 1931.  
 Cinchonine acetate, preserving collodion emulsions by, 2846.  
 Cinematograph films, *see* Films, Photographic.  
 Cinematography, 2796, 2884, 2886.  
 —, color, 2880.  
 Cinematoscopic pictures, celluloid, 2748.  
 Cineol, *see* Eucalyptol.  
 Cinnamaldehyde, *see* Cinnamic, aldehyde.  
 Cinnamene, polymerized, 2393.  
 —, cellulose ester solvent, 2536.  
 Cinnamene, *see also* Styrene.  
 Cinnamic alcohol, methylated, 265.  
 Cinnamic alcohol, *see also* Styrene.  
 Cinnamic aldehyde, *see also* Oil of cinnamon.  
 Cinnamic ether, *see also* Ethyl cinnamate.  
 Cinnamon, *see* Oil of cinnamon.  
 Cinnamyl aldehyde, *see* Aldehyde, cinnamic.  
 Cinnamyl compounds, cellulose ester solvent, 2547.  
 Cinnamyl acid, *see* Cinnamic acid, natural.  
 Cinnamyl ether, *see* Ethyl cinnamate.  
 Cinnyl, *see* Cinnamyl.  
 Cinnyl cinnamate, *see* Styracin.  
 Citrates, inflammability reducer, 1703.  
 Citradic acid, *see* Aconitic acid.  
 Citric acid, 2821, 2822  
 —, absorption tannin by cellulose and, 62.  
 —, action of, on cellulose, 110, 120.  
 —, —, on cotton, 110.  
 —, cellulose nitrate solvent of alcohol and, 2388.  
 —, effect of, on viscosity cellulose acetate, 1739.  
 —, effect of, on viscosity cellulose nitrate, 1739.  
 —, liberation nitrous acid by, 962.  
 —, saccharifying starch by, 398.  
 —, solubility silicon-iron alloys in, 957.  
 Citric ether, *see* Ethyl citrate.  
 Claret, dry plate preservative, 2833.  
 Clay, absorbing sulfuric acid by, 1313.  
 —, extraction sodium from, 729.  
 C. L. powder, 2960.  
 Cliches, celluloid, 2746.  
 —, collodion, 2868.  
 Clobin, 2795.  
 Clock case, celluloid, 2712.  
 Cloisonne, imitating, celluloid for, 2722.  
 Clorelone, *see* Trichlor tertiary butyl alcohol.  
 Cloth, enamel, cellulose nitrate for, 2610.  
 —, nitrated, cartridges of, 1887.  
 —, nitration, superficial, 1890, 1891.  
 —, *see also* Cellulose, Cotton, Paper, Wood.  
 Clove-oil, methyl-*n*-amyl ketone from, 2401.  
 Clysol, 3077, 3082.  
 Coal, nitrating, 1871.  
 —, pyrites in, 1044.  
 —, sulfur in, sulfuric acid from, 1292.  
 Coal gas, sulfur from, 1030.  
 —, sulfur in, utilizing, 1085.  
 Coal naphtha, *see* Benzene, from coal tar.  
 Cobalt bromide, reducing inflammability cellulose nitrate by, 1779, 1782.  
 Cobalt chloride, dissolving cellulose by, 109.  
 —, reducing inflammability cellulose nitrate by, 1779, 1782.  
 Cobalt iodide, 2810.  
 —, reducing inflammability cellulose nitrate by, 1779, 1782.  
 Cobalt-nickel, transporting nitric acid in vessels of, 839.  
 Cobalt nitrate, collodion emulsion containing, 2845.  
 Cobalt oxide, 177.  
 —, catalyst, 917, 1111.  
 —, catalytic action of, 1158.  
 —, nitric acid manufactured with, 811.  
 Cobalt phosphate, reducing inflammability cellulose nitrate by, 1780.  
 Cochineal, coloring celluloid by, 1896.  
 Cochius viscosimeter, 2276.  
 Cocoa, starch from, 447.  
 Cocoa fat, paint remover containing, 2565.  
 Cocoa powder, 1636.  
 Cocaine, cellulose nitrate with, 2794.  
 Cocanada cotton, constants of, 506.  
 Cocanut fiber, 328.  
 —, nitrated, 1872.  
 Cocanut shell, nitration of, 330.  
 Cocanut soap, decolorizing old collodion by, 2815.  
 —, restoring collodion by, 2815.  
 Cocosit nitrate, 1448.

- Codeine, 1334, 1335.  
 —, preserving collodion emulsions by, 2846.  
 Codeine acetate, preserving collodion emulsions by, 2846.  
 Cod liver oil, addition to iodizer, 2812.  
 • Coffee, dry plate preservative, 2828, 2833.  
 Coffee process, 2833.  
 Coffeti-Maderna method (total acidity), 1508.  
 Cogswell mill, 622.  
 Coiffure, ornaments for, celluloid, 2714.  
 Coke, packing Gay-Lussac tower with, 1264.  
 Coke towers, 1220.  
 Collapsible tubes, collodion, 1773.  
 Collar support, celluloid, 2703.  
 Collar tab, celluloid, 2711.  
 Collars, celluloid, 2706.  
 —, waterproofing, cellulose acetate for, 2708.  
 —, —, celluloid for, 2708.  
 Collocine, 2820.  
 Collocuto, 2795.  
 Collodin, 1809, 2973.  
 Collodio-bromide emulsion, 2799.  
 Collodio-chloride, developing, 2858.  
 —, gold toning, 2856.  
 —, increasing permanency of, 2862.  
 Collodio-chloride paper, 2851.  
 Collodio-chloride positives, 2852, 2856.  
 —, finishing, 2859.  
 • Collodio-chloride prints, 2856.  
 • Collodioiderm, 2795.  
 • Collodion, acetate, 3060.  
 —, acetone, 2790.  
 —, action polarized light on, 1757.  
 —, albumen, iodizer and, 2813.  
 —, aldehyde, iodizer and, 2812.  
 —, ammoniacal resin, iodizer and, 2813.  
 —, ammonium acetate, iodizer and, 2813.  
 —, amorphous, 2802.  
 —, aniline iodizer and, 2813.  
 —, aniline bromide and, 2810.  
 —, aniline chloride and, 2810.  
 —, arsenic bromide and, 2810.  
 —, arsenic iodide and, 2810.  
 —, aurine with, 2872.  
 —, bath, strength of, estimating, 2818.  
 —, baths, restoring, 2817.  
 —, belladonna, 2794.  
 —, benzine, iodizer and, 2812, 2813.  
 —, benzoin, iodizer and, 2813.  
 Collodion, bromides with, 2798.  
 —, bromide, iodizer and, 2812.  
 —, bromized, 2806, 2840.  
 —, cadmium iodide and, 2811.  
 —, cadmium salts with, 2807.  
 —, calcium bromide and, 2811.  
 —, calcium iodide and, 2811.  
 —, camphor, iodizer and, 2813.  
 —, carbon prints of, 2833.  
 —, cartridge of, 1591.  
 —, cartridge waterproofed by, 1623.  
 —, chloral hydrate, iodizer and, 2812.  
 —, chloroform, iodizer and, 2812.  
 —, classification, 1691.  
 —, cobalt iodide and, 2810.  
 —, cod liver oil, iodizer and, 2812.  
 —, color screens for, 2874.  
 —, color sensitizing, 2873.  
 —, copaiba balsam, iodizer and, 2813.  
 —, cop bottoms for manufacturing, 582.  
 —, creosote, iodizer and, 2812.  
 —, coumarin, iodizer and, 2813.  
 —, coumarin bromide compounds, iodizer and, 2813.  
 —, decolorizing, ammonia for, 2814, 2817.  
 —, decolorizing, ammonium hydroxide for, 2815.  
 —, —, ammonium iodide for, 2815.  
 —, —, cadmium for, 2815.  
 —, —, cadmium iodide for, 2815.  
 —, —, calcium hydroxide for, 2815.  
 —, —, coconut soap for, 2815.  
 —, —, mercury for, 2815.  
 • —, —, mercury (ic) chloride for, 2815.  
 —, —, morphine for, 2815.  
 —, —, potassium citrate for, 2817.  
 —, —, potassium cyanide for, 2814, 2817.  
 —, —, potassium hydroxide for, 2815.  
 —, —, potassium permanganate for, 2817.  
 —, —, silver for, 2815.  
 —, —, sodium bicarbonate for, 2814, 2817.  
 —, —, sodium carbonate for, 2814, 2817.  
 —, —, sodium chloride for, 2817.  
 —, decomposition, 2814.  
 —, definition of, 1691.  
 —, densitizers, 2846.  
 —, dialyzers, permeability of, 1774.  
 —, dialyzing starch by, 440.  
 —, dry plates, 2825.  
 —, —, development, 2826.  
 —, —, intensification, 2826.  
 —, —, preparation, 2826.  
 —, electro-conductivity of, 1767.

- Collodion, emulsifying, 2840.  
 —, enamel, 2905.  
 —, ether-free, 2802.  
 —, ethylamine bromide with, 2810.  
 —, ethylamine chloride, 2810.  
 —, ethylamine iodide with, 2810.  
 —, extinction coefficient of, 1761.  
 —, filtration antigens by bags of, 1773.  
 —, filtration through, 1768.  
 —, flexible, 2573.  
 —, fog with, preventing, 2816.  
 —, fog formation, preventing, 2816.  
 —, gallic acid, iodizer and, 2812.  
 —, gelatin, iodizer and, 2813.  
 —, glycerol, iodizer and, 2812.  
 —, glycyrrhizin, iodizer and, 2813.  
 —, gold bromide, iodizer and, 2812.  
 —, gold chloride, iodizer and, 2812.  
 —, helenin, iodizer and, 2813.  
 —, image density, increasing, 2810.  
 —, intensification, 2822.  
 —, iodine, iodizer and, 2812.  
 —, iodine cyanide, iodizer and, 2813.  
 —, iodizers for, 2807.  
 —, —, —, organic, 2810.  
 —, —, —, additions to, 2811.  
 —, iodizing, 2806.  
 —, iodo-bromized, 2807.  
 —, iodoform, iodizer and, 2812.  
 —, iron salts with, 2810.  
 —, isinglass, iodizer and, 2813.  
 —, lead acetate, iodizer and, 2812.  
 —, lead nitrite, iodizer and, 2812.  
 —, leather, 2907.  
 —, light filters for, 2874, 2875.  
 —, lithium salts with, 2810.  
 —, mercury, iodizer and, 2813.  
 —, mercury (ic) cyanide, iodizer and, 2813.  
 —, morphine acetate, iodizer and, 2812.  
 —, mould on, formaldehyde as preventative, 1773.  
 —, negative, intensification, 2822.  
 —, nitrogen iodide, iodizer and, 2812.  
 —, old, decolorizing, 2814.  
 —, —, restoring, 2814.  
 —, oil of cloves, iodizer and, 2813.  
 —, oil of turpentine, iodizer and, 2813.  
 —, organifiers, 2846.  
 —, paper, 2802.  
 —, paraffin, iodizer and, 2813.  
 —, Pharmacopeal, preparing, 1501.  
 —, phenol, iodizer and, 2813.  
 —, photographic, 2800.  
 —, —, stability, 2804.  
 —, pin holes in, 2816.  
 —, plates, developing, 2818.  
 Collodion, plates, spectral sensitive-  
 ness of, 2815.  
 —, platinum chloride iodizer and,  
 2812.  
 —, potassium nitrite, iodizer and,  
 2812.  
 —, potassium phosphite, iodizer and,  
 2812.  
 —, preservatives, 2846.  
 —, restoring, 2814.  
 —, —, ammonia for, 2814, 2817.  
 —, —, ammonium hydroxide for,  
 2815.  
 —, —, ammonium iodide for, 2815.  
 —, —, cadmium for, 2815.  
 —, —, cadmium iodide for, 2815.  
 —, —, calcium hydroxide for, 2815.  
 —, —, coconut soap for, 2815.  
 —, —, mercury for, 2815.  
 —, —, mercury (ic) chloride for, 2815.  
 —, —, morphine for, 2815.  
 —, —, potassium citrate for, 2817.  
 —, —, potassium cyanide for, 2814,  
 2817.  
 —, potassium hydroxide for, 2815.  
 —, —, potassium permanganate for,  
 2817.  
 —, —, silver for, 2815.  
 —, —, sodium bicarbonate for, 2814,  
 2817.  
 —, —, sodium carbonate for, 2814,  
 2817.  
 —, —, sodium chloride for, 2817.  
 —, rubber, iodizer and, 2813.  
 —, sacs of, 1768.  
 —, safe-lights of, 2875.  
 —, sensitizing, silver acetate for,  
 2816.  
 —, —, silver ammonio-nitrate for,  
 2816.  
 —, —, silver chlorate for, 2816.  
 —, —, silver fluoride for, 2816.  
 —, —, silver lactate for, 2816.  
 —, —, silver nitrate for, 2816.  
 —, —, silver perchlorate for, 2816.  
 —, —, silver salts for, 2816.  
 —, silver bath, 2815.  
 —, silver oleate, iodizer and, 2813.  
 —, soap, iodizer and, 2813.  
 —, sodium acetate, iodizer and, 2812.  
 —, sodium iodide and, 2811.  
 —, sodium nitrite, iodizer and, 2812.  
 —, sodium phosphite, iodizer and,  
 2812.  
 —, solid, Lloyd's, 1500.  
 Collodion, solid, *see also Celluloid*.  
 —, solubility of, 1691.  
 —, stability of, 2804.  
 —, standardizing, 2840.

- Collodion, strontium bromide and, 2811.
- , strontium chloride and, 2811.
- , strontium iodide and, 2811.
- , sugar, iodizer and, 2812.
- , summer, 2805.
- , tannin, iodizer and, 2812.
- , test papers of, 1776.
- , tetraethylammonium iodide with, 2810.
- , transparencies, 2865, 2867.
- , transparent positives from, 2867.
- , transportation, 1927.
- , unburnable, Stocker's, 1636, 1782.
- , uranium nitrate, iodizer and, 2812.
- , uranium salts, iodizer and, 2813.
- , urea, iodizer and, 2812.
- , viscosity, effect pulping on, 1657.
- , —, effect washing on, 1657.
- , wax, iodizer and, 2813.
- , wet, difficulties in process, 2824.
- , —, failures in, 2823.
- , wet plates, developers, 2818.
- , winter, 2805.
- , Zettnow's, 2048.
- , zinc bromide and, 2811.
- , zinc iodide and, 2811.
- Collodion, see also Cellulose nitrate.*
- Collodion see also Guncotton.*
- Collodion bags, 1773.
- Collodion camera, 2799.
- Collodion cotton, see Cellulose nitrate.*
- Collodion emulsions, 2796, 2799, 2836.
- Collodion emulsion, action acids on, 2845.
- , densitizers for, 2846.
- , manipulation, 2845.
- , manufacture of 2843.
- , ripening, 2842.
- , organifiers for, 2846.
- , oxidizing, 2845.
- , preparation, 2836.
- , preservatives for, 2846.
- , printing out, 2851.
- Collodion filters, 1771.
- Collodionization, 2783.
- Collodion lacquers, 2573.
- Collodion membranes, 2913.
- , diffusion electrolytes through, 1775.
- , diffusion water through, 1774.
- , filtration through, 1771.
- , light reflection of, 1769.
- , manufacture of, Farmer process, 1774.
- , osmotic pressures by, 1768.
- , physical experiments with, 1776.
- , physical properties of, 1768.
- Collodion membranes, polarization of, 1768.
- , separation gelatinates by, 1775.
- Collodion plates, 2796.
- , sensitiveness of, 2815.
- Collodion positives, 2796, 2798, 2848, 2868.
- Collodion sacs, 1768.
- Collodion sacs, see also Cellulose nitrate, sacs.*
- Collodion transfers, 2868.
- Collodion tubes, collapsible, 1773.
- Collodioskin, 2795.
- Collodium, 1693.
- Collodolith, 1693, 2575, 2807.
- Colloid, bichromated, 2908.
- , cellulose as, 30, 36.
- Colloidal sulfur, 1036.
- Colloids, 30.
- , bibliography of, 8.
- Collosin, 1693.
- Collotype process, 2907.
- Colloxylin, 1693, 1696, 2780.
- Colloxylin, see also Cellulose nitrate.*
- Colonial spirits, 2409.
- Colophony, cellulose ester solvent, 2541.
- , lacquers of cellulose nitrate and, 2592.
- , nitrated, 1870.
- , reducing inflammability celluloid by, 2752.
- Color cinematography, 2880.
- Colorimeter, Lummer - Brodhuhn, 1661.
- Color photography, 2875.
- Color photography, see also Photography, color.*
- Color screen, 2874.
- , cellaloid, 2877.
- Color sensitizing, 2873.
- Columbian spirits, 2409.
- Colza oil, de-arsenicating acid with, 1340.
- Combs, celluloid, 2715.
- , massage, celluloid, 2718.
- Combustion engines, nitric oxide from interval, 715.
- Comforters, baby, celluloid, 2729.
- Commutator bars, bakelite for, 2778.
- , condensite for, 2778.
- Composite photographs, 2865.
- Compound celluloses, 8.
- Compressed air, see Air, compressed.*
- Compressed guncotton, see Cellulose nitrate, compressed.*
- Comptah cotton, constants of, 506.
- , diameter of fibers, 508.
- , length of fibers, 509.

- Condensates, see Condensation products.*  
*Condensers, manifold, 748.*  
 —, nitric acid, 779.  
*Condensite, 2767.*  
 —, commutator bars of, 2778.  
*Conductors, electrical, cellulose nitrate for, 2598.*  
*Coniferyl alcohol, 152, 264, 663.*  
*Coniferyl aldehyde, 663.*  
*Coniferous lignin, 663.*  
*Congo red, 220, 1775, 2871.*  
*Conicine, see Coniine.*  
*Constrictol, 2795.*  
*Contact masses, regeneration of, 1162, 1170.*  
 —, revivifying, 1116.  
*Contact masses, see also Catalyst.*  
*Contact poison, 938, 1158.*  
 —, antimony, 1158.  
 —, arsenic, 1158.  
 —, metalloids, 907.  
 —, removal of, 907.  
 —, removal of, from catalysts, 906.  
 —, selenism, 1158.  
 —, tellurium, 1158.  
*Contact process, 1009.*  
 —, chamber process combined, 1288.  
 —, theory of, 1133.  
*Contact process, see also Sulfuric acid, contact.*  
*Containers, acid, lining, 958.*  
*Continuous picture films, see Films, picture continuous.*  
*Coopall's powder, 2970, 2971.*  
*Coopall Smokeless powder, 1808, 1809.*  
*Copaiba, dry plate preservative, 2830.*  
*Copaiba balsam, iodizer addition to, 2813.*  
*Copaivic ether, see Ethyl copaiate.*  
*Copal, 1739, 1887.*  
 —, acetone as solvent for, 2400.  
 —, amyl acetate as solvent of, 2492.  
 —, celluloid lacquer containing, 2578.  
 —, cellulose ester solvent, 2541.  
 —, cellulose nitrate lacquer containing, 2592.  
 —, dry plate preservative, 2829.  
 —, reducing inflammability celluloid, by, 2782.  
 —, turpentine substitute containing, 2569.  
 —, solubility in amyl acetate, 2492.  
*Cop-boktoms, 581, 582.*  
*Copper, action sulfuric acid on, 1319.*  
 —, ammonia solutions of, 70.  
 —, analysis, in pyrites, 1055.  
 —, determination of, 546, 616.  
*Copper, determination of, in pyrites, 1052.*  
 —, dissolving cellulose by ammonia and, 68.  
 —, fixation of, by cellulose, 141.  
 —, niter cake for extracting, 792.  
 —, oxidizing ammonia by, 894.  
 —, pickling, niter cake for, 804.  
 —, producing nitrogen with, 685.  
 —, recovery in sulfuric acid manufacture, 1310.  
 —, smelting, smoke from, purifying, 1086.  
*Copper acetate, 464.*  
 —, coloring celluloid by, 1896.  
*Copper (ic) acetate, photo developing by, 2819.*  
*Copper ammonium, see Cuproammonium.*  
*Copper (ous) ammonium hydroxide, 79.*  
*Copper (ic) bromide, collodion emulsion with, 2846.*  
 —, intensifying by, 2824.  
 —, reducing inflammability cellulose nitrate by, 1779, 1782.  
*Copper caseinate, reducing inflammability celluloid by, 2754.*  
*Copper (ic) chloride, intensifying by, 2824.*  
 —, reducing inflammability cellulose nitrate by, 1779, 1782.  
 —, "Copper equivalent," 141.  
*Copper (ic) ferrocyanide, coloring celluloid by, 1896.*  
*Copper hydroxide, oxidizing ammonia by, 894.*  
*Copper (ic) iodide, reducing inflammability cellulose nitrate by, 1779, 1782.*  
*Copper (ic) nitrate, 69.*  
*Copper oxide, catalyst, 912, 916.*  
 —, catalytic action of, 1158.  
*Copper (ic) oxide, catalytic action of, 1103.*  
*Copper (ous) oxide, determining, 382.*  
*Copper (ic) oxide, producing nitrogen with, 685.*  
*Copper (ic) peroxide, 82.*  
*Copper powders, 2585.*  
*Copper pyrites, 1008.*  
*Copper pyrites, see Pyrites, copper.*  
*Copper pyrites, see also Copper sulfide.*  
*Copper salts, absorption of, by cellulose, 114.*  
 —, action on cellulose, 112.  
 —, acetating cellulose in presence of, 3010.

- Copper salts, photo developing by, 2819.  
 Copper sulfacetate, 73.  
 Copper sulfate, catalytic action of, 1104.  
   —, sulfuric acid from, 1295.  
 Copper sulfate equivalent, 141.  
 Copper (ic) sulfide, coloring cellulose by, 1896.  
 "Copper values," 175.  
   —, determining, 381, 546.  
   —, hydration, 381.  
*Copperas*, see *Iron (ous) Sulfate*.  
*Copperized ammonia*, see *Cuprammonium*.  
 Coquimbite, 812.  
 Coral, red, celluloid for imitating, 2720.  
 Coralline, 1694, 2667.  
*Coralline*, see also *Aurine*.  
*Corchorus capsularis*, 245.  
*Corchorus olitorius*, 245.  
 Cordite, 1753, 2925, 2928, 2929, 2931, 2933, 2938, 2943, 2948.  
   —, action ultra-violet rays on, 1763.  
   —, aqueous decomposition of, 1717.  
   —, ballistics of, 2052.  
   —, cellulose nitrate used in, 1736.  
   —, decomposition of, 1715.  
   —, decomposition, aqueous, 1717.  
   —, —, calcium nitrate in, 1717.  
   —, —, by lime, 1717.  
   —, explosion, temperature of, 1801.  
   —, heat of explosion of, 2953.  
   —, manufacture of, cotton for, 2950.  
   —, Mark I, combustion of, products of, 1800.  
   —, M.D., 2950, 2951.  
   —, action ultra-violet light on, 1714.  
   —, —, combustion of, products of, 1800.  
   —, —, decomposition, gases evolved in, 1764.  
   —, —, explosion, temperature of, 1801.  
   —, M.D.S., 2950.  
   —, modified, heat of explosion of, 2953.  
   —, nitrogen in, recovery of, 1886.  
   —, origin of, 2949.  
   —, R.D.B., gelatinization of, 1744.  
   —, stability, determining, 2330.  
 Cork, cellulose nitrate and, 2610.  
   —, composition of, 11.  
   —, imitation, vulcanized fiber for, 105.  
   —, nitrated, 2610.  
   —, viscose for, 3079.  
 Corks, artificial, cellulose nitrate for, 2599, 2617.  
   —, —, cellulose nitrate lacquers for, 2583.  
   —, —, manufacture of, 2655.  
 Corn, degerminating, 486.  
   —, Indian, nitrated, 486.  
   —, starch from, 447.  
   —, starch in, 465.  
 Corn cobs, preparation xylose from, 205.  
 Corn cures, collodion, 2794.  
 Corn pith, cellulose from, 328.  
 Corn stalks, cellulose from, 328, 332.  
   —, nitration of, 329.  
*Corn starch*, see *Starch, corn*.  
 Cornicide, 2795.  
 Coronite, 2970.  
 Corrosion, 956.  
*Corrosive sublimate*, see *Mercury (ic) chloride*.  
 Corset fastener, celluloid, 2711.  
 Corwey, 246.  
 Cotton, absorbent, 516, 537.  
   —, —, appraising, 540.  
   —, —, ash in, 540.  
   —, —, composition of, 540.  
   —, —, description of, 540.  
   —, —, fat in, 538, 540.  
   —, —, heat of combustion of, 603.  
   —, —, specifications for, 540.  
   —, —, tests for, 538.  
   —, absorption acids by, 118.  
   —, absorption gases by, 529.  
   —, acetating, moisture in, 634.  
   —, acetylene tetrachloride extraction of, 590.  
   —, acid number of, 615.  
   —, action of alkali on, 221.  
   —, action of aluminium sulfate on, 141.  
   —, action of ammonium chloride on, 111.  
   —, action bleaching powder on, 612.  
   —, action boric acid on, 117.  
   —, action of calcium chloride on, 111.  
   —, action of citric acid on, 110.  
   —, action cuprammonium on, 502, 529.  
   —, action, hydrochloric acid on, 117.  
   —, action of lactic acid on, 110.  
   —, action of nickel sulfate on, 141.  
   —, action nitric acid on, 117.  
   —, action of oxalic acid on, 110.  
   —, action ozone, 153, 157.  
   —, action of phosphoric acid on, 110.  
   —, action of phosphorous acid on, 110.  
   —, action of potassium chloride on, 144.



- Cotton, action of agents on, 529.  
 —, action of sulfuric acid on, 118; 529.  
 —, action of tartaric acid on, 110.  
 —, action of thiocyanic acid on, 110.  
 —, adhesive, 2293.  
 —, alkali boil-off, 588.  
 —, alkalinity of, 663.  
 —, American, ash, in, 525.  
 —, —, extractive in, 663.  
 —, ammonia and, 214.  
 —, ammonia absorbed by, 529.  
 —, analyses of, 530, 541.  
 —, anatomical structure, 501.  
 —, animalized, 1893.  
 —, artificial, 569.  
 —, —, preparing, 566.  
 —, ash in, 27, 244, 541.  
 —, —, composition of, 527, 531.  
 —, ash content of, 524.  
 —, bacterial action on, 338.  
 —, bale presses for, 583.  
 —, bales, opening, 586.  
 —, —, sampling, 588.  
 —, —, weight of, 583.  
 —, beetling of, 503.  
 —, Bengal, ash in, 525.  
 —, benzene extract of, 536.  
 —, benzylation of, 222.  
 —, "black seed," 491.  
 —, bleached, copper value of, 616.  
 —, bleaching, 349, 538, 604.  
 —, —, chlorine process, 606.  
 —, —, determining degree of, 543, 615.  
 —, —, effect of, on structure, 617.  
 —, —, electrolytic, 608.  
 —, —, formaldehyde for, 619.  
 —, —, pressure, 619.  
 —, —, vacuum, 618.  
 —, —, without chlorine, 618.  
 —, blending, 575.  
 —, boiling-off, 588, 590.  
 —, —, changes in, 600.  
 —, bombax, 496.  
 —, botanical classification, 491.  
 —, botany of, 587.  
 —, bombax, nitrating, 496.  
 —, Brazilian, 489.  
 —, breaking strain of, 527.  
 —, —, testing, 548.  
 —, Broach, ash in, 525.  
 —, capillarity of, determining, 553.  
 —, carbon content, 10.  
 —, carbonization of, 54.  
 —, Caravonica, 489.  
 —, cellulose in, 244.  
 —, —, determining, 543.  
 Cotton, cellulose nitrate from, 573.  
 —, China wadding, 646, 648.  
 —, chlorine absorbed by, 529.  
 —, classification, 495.  
 —, —, botanical, 491.  
 —, cleaning, 642, 644.  
 —, combings, nitrating, 557.  
 —, commercial, classification, 495.  
 —, comminution, France method, 2009.  
 —, composition of, 247, 493, 530, 1607.  
 —, compounds of nitric acid and, 1644.  
 —, condensation vapor on, 515.  
 —, conditioning of, 510.  
 —, constituents of, 530.  
 —, constants of, 244.  
 —, conveying, 624, 632.  
 —, —, by air, 629.  
 —, cop-bottoms, 581.  
 —, copper value of, determining, 546.  
 —, "count" of, 491.  
 —, cultivation of, 487.  
 —, cuticle of, 490, 491.  
 —, dead, 503.  
 —, de-fatting, 590.  
 —, —, Zimmermann process, 594.  
 —, definition of, 485.  
 —, de-gumming, 592.  
 —, desiccated, 511.  
 —, development of, 490.  
 —, Dharwar, ash in, 525.  
 —, Dhollerah, ash in, 525.  
 —, diameter of fibers, 508.  
 —, dichroism of, 49.  
 —, desintegrating, 624, 627.  
 —, dissolving, hydrobromic acid for, 94.  
 —, —, hydrochloric acid for, 95.  
 —, distillation of, 256.  
 —, distinction between linen, 501.  
 —, drying, 619.  
 —, —, air circulation in, 636.  
 —, —, automatic, 640.  
 —, —, carbon dioxide for, 638.  
 —, —, continuous, 640.  
 —, —, final, 634, 635.  
 —, —, mechanical, 640.  
 —, —, Norton apparatus, 642.  
 —, —, Proctor system, 640.  
 —, —, Rosenberg method, 642.  
 —, —, Semper method, 642.  
 —, —, Waltham Abbey process, 638.  
 —, —, Zittauer machine for, 565.  
 —, dyeing test, 547.  
 —, Egyptian, 489, 492.  
 —, —, extractive in, 663.  
 —, elasticity of, 527.  
 —, electric charge of, 49.

- Cotton, English requirements for, 554.
- , ether extract of, 536.
  - , —, determining, 542.
  - , explosive, 1693.
  - , extracting fat from, 594.
  - , extractive in, 521.
  - , extractive matter in, determining, 544.
  - , fat in, determining, 542.
  - , fermentation of, 338, 339.
  - , fibers, classification of, 500.
  - , —, dimensions of, 489, 503.
  - , filaments of, description, 489.
  - , —, dimensions of, 503, 507.
  - , final drying, 634.
  - , "fly," nitrating, 563.
  - , flock, preparing, 566.
  - , fluffy, 2056.
  - , French smokeless powder from, 574.
  - , fulminating, 1573, 1693.
  - , furfural in, 17.
  - , —, determining, 544.
  - , fuzz, from, recovering, 573.
  - , fuzz from seeds of, nitrating, 572.
  - , gases absorbed by, 529.
  - , Georgia, 489.
  - , ginning of, 486.
  - , glycerol treatment of, 567.
  - , "green seed," 491.
  - , heat of combustion of, 663.
  - , heating of, 512, 563.
  - , history of, 485.
  - , hull fibers from, 579, 646.
  - , hydration of, 142.
  - , hydrocellulose in, 543.
  - , hydrolyzing, hydrochloric acid for, 210.
  - , hygroscopicity of, 1751, 1834.
- Cotton, hygroscopicity, see also Cotton, moisture in.*
- , imbedding, 2780.
  - , immature, 497.
  - , impurities in, 580.
  - , —, emulsifying, 592.
  - , —, saponifying, 592.
  - , Indian, 489.
  - , —, ash in, 526.
  - , —, length of fibers, 509.
  - , —, mineral constituents in, 530.
  - , inorganic constituents in, 524.
  - , internal stresses in, 49.
  - , knot-breaking, 627.
  - , length of fiber, 489.
  - , lignin in, 244.
  - , —, determining, 373.
  - , linters, nitrating, 569.
  - , —, pulp from, 2054.
- Cotton, long Georgia, 489.
- , lumen of, 491.
  - , Mann's Russian, 2840.
  - , matted fiber, 2056.
  - , maturing, 566.
  - , medicated, tests for, 547.
  - , Memphis Star, 1935.
  - , mercerization of, 46.
  - , —, by-products from, 664.
  - , —, determining degree of, 384.
  - , mercerized, action of ozone on, 153, 154.
  - , —, composition of, 532.
  - , —, copper value of, 383, 547.
  - , —, effect of iron on, 227.
  - , —, iron in, 532.
  - , —, microscopical appearance of, 246, 230.
  - , —, nitration of, 29.
  - , —, softening, calcium chloride for, 106.
  - , —, —, zinc chloride for, 106.
  - , microscopy of, 490, 497.
  - , mildew on, 344.
  - , mill sweepings, 646.
  - , mineral matter in, 521, 524, 527.
  - , modified, nitrating, 562.
  - , modifying, high temperatures for, 43.
  - , —, nitration of, 562.
  - , —, moist, acetating, 634.
  - , moisture in, 244, 508, 514, 634, 1751.
  - , —, determination of, 511, 541.
  - , —, regain of, 510.
  - , —, "mucilage value" of, 602.
  - , nankin, 494.
  - , negative, 1693.
- *Cotton, nitration of, see Cellulose, nitrating.*
- , nitrating, acid losses, minimizing, 1422.
  - , —, acid required, 573.
  - , —, analysis of, 552.
  - , —, automatic steeper, 1964.
  - , —, for cordite, 2950.
  - , —, English requirements for, 554.
  - , —, German requirements for, 555.
  - , —, inspection of, 552.
  - , —, loss of acid, minimizing, 1422.
  - , —, moisture in, 634.
  - , —, preparing for, 553, 560.
  - , —, powdered, 561.
  - , —, requirements for, 554, 557.
  - , —, specifications for, 555.
  - , —, superficial, 2025.
  - , —, tests for, 552.
  - , —, theory, 1683.
  - , —, weight increase in 573.

- Cotton, nitrating, yields, 573.  
 —, nitrogen in, 520, 638, 663.  
 —, non-cellulose in, determining, 543.  
 —, oil in, 532.  
 —, Oomrawuttee, ash in, 525.  
 —, opener, 632.  
 —, opening, 620, 642.  
 —, Orleans, ash in, 525.  
 —, oxycellulose in, determining, 543, 547.  
 —, oxygen content, 10.  
 —, pectic matter in, 244.  
 —, pentosans in, determining, 544.  
 —, Pernambuco, ash in, 525.  
 —, Peruvian, 489.  
 —, —, ash in, 525.  
 —, petals, coloring matter in, 495.  
 —, petroleum ether extract of, 566.  
 —, phosphoric acid in, 531.  
 —, picking, 595, 627.  
 —, picking machine for, 593.  
 —, pilled, 2056.  
 —, potassium hydroxide solubility, 543.  
 —, potassium salts in, 521.  
 —, powdered, nitrating, 561, 502, 1637.  
 —, powdering, 2036.  
 —, —, France method, 2036.  
 —, preparation for esterification, 583.  
 —, preparation for nitration, 55, 500.  
 —, preparing for nitration, Berl method, 2017.  
 —, —, Saco-Lowe system, 642.  
 —, pressing hydraulically, 583.  
 —, producing transparent effects on, 223.  
 —, protective, 1093.  
 —, protein in, 244, 522.  
 —, Punjab, ash in, 526.  
 —, pure, preparation of, 26.  
 —, purified, impurities in, 537.  
 —, —, specifications for, 565.  
 —, purifying, 565, 583, 627.  
 —, —, Austrian method, 565.  
 —, —, boil-off, 588.  
 —, —, Daniel and Benoist method, 561.  
 —, —, enzymes for, 562.  
 —, —, flow sheet of, 584, 585.  
 —, —, Feltzer method, 561.  
 —, —, hand picking, 648.  
 —, —, hydro-extracting, 620.  
 —, —, losses in, 565.  
 —, —, pancreatin for, 562.  
 —, —, papayotin for, 562.  
 —, —, preliminary drying, 619.  
 —, —, ricinins enzymes for, 562.  
 —, —, rinsing, 620.  
 Cotton, purifying, Stockton process, 648.  
 —, purifying, teasing, 620.  
 —, —, "thread extracting," 627.  
 —, pyrocollodion from, 573.  
 —, radium on, 61.  
 —, rate of water absorption, testing, 553.  
 —, reactions, microchemical, 501.  
 —, reagents on, 529.  
 —, refractive index of, 1761.  
 —, "regain" of, 510.  
 —, rendering absorbent, 588.  
 —, requirements for, 554.  
 —, resiliency of, 527.  
 —, ripening of, 489.  
 —, rotatory power of, 50.  
 —, "roving waste," 586.  
 —, sampling, 541.  
 —, saturation value of, 517.  
 —, "scouring," 590, 1935, 1936.  
 —, Sea Island, 497, 489.  
 —, —, ash in, 525.  
 —, seed of, nitrating, 599.  
 —, seeds from, de-linting, 578.  
 —, —, nitrating waste of, 571.  
 —, seed-lint in, 578.  
 —, sensitive, 1693.  
 —, separating, 627.  
 —, short fibers, picking, teasing, 624.  
 —, —, utilizing, 568.  
 —, silica in, removal of, 608.  
 —, Smyrna, 493.  
 —, soda boil of, 595.  
 —, soluble, 1693.  
 —, species of, 493.  
 —, specifications of, 541, 554.  
 —, specific gravity of, 41, 518.  
 —, staple of, 489.  
 —, sterilizing, 538.  
 —, "stick waste," 586.  
 —, strength of, 527.  
 —, sulfuric acid solubility of, 543.  
 —, Surat, 498.  
 —, teasing, 620.  
 —, tenacity of, 528.  
 —, tensile strength of, 527.  
 —, testing, 541.  
 —, —, steaming methods, 547.  
 —, Texas, ash in, 525.  
 —, thread, nitrating, 1893.  
 —, twist in, 497.  
 —, ultramicroscopic behavior of, 61.  
 —, U. S. Ordnance requirements for, 554.  
 —, unripe, 497.  
 —, Upland, 489, 493.  
 —, value of, determining, 547.  
 —, vapor tension of, 518.

- Cotton, viscosity, cuprammonium for determining, 548.  
 —, —, falling sphere method, 549.  
 —, —, solutions of, 46.  
 —, —, Woolwich method, 548.  
 —, viscosity value of, 547.  
 —, waste from, classification, 646.  
 —, —, inspection of, 598.  
 —, —, nitrating, 557.  
 —, —, purifying, 648.  
 —, —, starch in, 648.  
 —, —, separating, 627.  
*Cotton, water in, see Cotton moisture in.*  
 —, water absorption of, testing, 553.  
 —, "water of constitution," 508.  
 —, water extract from, 513.  
 —, wax from, 534.  
 —, weaving mill waste, 580, 646.  
 —, wetting of, 515.  
 —, willowing, 627, 629.  
 —, wood gum in, determining, 580.  
 —, xylan in, 536.  
*Cotton, see also Cellulose, Lignin, Paper, Wood.*  
 Cotton bales, weight of, 583.  
 Cotton bolls, composition of, 525.  
 Cotton-gin, 486.  
 Cotton hull fibers, 578, 579.  
 Cotton hulls, 578.  
 Cotton leaves, composition of, 525.  
 Cotton lint, composition of, 525.  
 Cotton linters, preparing for nitration, 575.  
 Cotton plant, constituents of, 525.  
 —, description of typical, 491.  
 —, inorganic constituents of, 525.  
 Cotton press, Cummins, 586.  
 Cotton Puro, 2795.  
 Cotton roots, composition of, 525.  
 Cotton seeds, constituents in, 525.  
 —, decorticating, 574.  
 —, ginning, 576.  
 —, nitrating, 569, 571.  
 Cotton seed fuzz, nitrating, 572.  
 Cotton seed hulls, cotton hemicellulose from, 271.  
 —, fuzz on, nitrating, 1878.  
 —, —, utilizing, 572.  
 —, nitrating, 1875.  
 —, purifying, 570.  
 —, utilizing, 572.  
 Cotton seed hull fiber, purifying, 570.  
 Cotton shavings, purifying, 575.  
 Cotton-silver, wax in, 535.  
 Cotton steeper, automatic, 1964.  
 Cotton stems, composition of, 525.  
 Cotton waste, classification, 646.  
 —, cleaning, 570.  
 —, inspecting, 598.  
 Cotton waste, R. I. B. 1743.  
 —, specifications for cordite manufacture of, 2950.  
 Cotton wax, 534.  
 —, iodine value of, 536.  
 Cotton wood gum, in, 536.  
*Cotton wool, see Cotton.*  
 Cottrell method, 1373.  
 Coumarin, iodizer addition to, 2813.  
 Coumarin bromine compounds, iodizer addition to, 2813.  
 Coumarone, cellulose ester solvent, 2541.  
*C (O) V, see Sulfuric acid.*  
 C. 80 powder, 2000.  
 Cranks, covering, celluloid; 2698.  
 Creosoforn, 2709.  
 Creosote, 57, 2617.  
 —, addition to, iodizer, 2812.  
 —, cellulose nitrate lacquer containing, 2593.  
 —, rendering cellulose nitrate astringent by, 2791.  
*Creosotal, see Creosote.*  
 Crepe, producing effect of, 233.  
 Cresol, action on lignocellulose, 262.  
 —, alcohol recovery by, 2558.  
 —, cellulose acetate solvent, 3027.  
 —, cellulose ester solvent, 2547.  
 —, ether recovery by, 2558.  
 Cresols, paint remover containing, 2566.  
 Cresols, reaction lignocellulose with, 262, 263.  
 m-Cresyl acetate, 2390.  
 Cresyl acetate, cellulose acetate solvent, 3035.  
 Cresyl anilid, cellulose ester solvent, 2540.  
 Cresyl anilid phosphate, cellulose ester solvent, 2540.  
 m-Cresyl butyrate, cellulose acetate solvent, 3035.  
 Cresyl carbonate, cellulose ester solvent, 2540.  
 Cresyl ether, cellulose acetate solvent, 3033.  
 Cresylphenyl ether, cellulose ester solvent, 2543.  
 Cresyl phosphate, cellulose ester solvent, 2540.  
 Cresyl p-toluenesulfethylanilid, cellulose ester solvent, 2546.  
 Cresyl p-toluenesulfonate, cellulose ester solvent, 2546.  
 Cresyl thiophosphate, cellulose ester solvent, 2540.  
 m-Cresyl iso-valerate, cellulose acetate solvent, 3035.

- Cresylic acid, cellulose acetate solvent 3032.  
*Cresylic acid, see also Cresol.*  
*m-Cresylic ether of salicylic acid, see m-Cresolol.*  
 Cricket, celluloid balls for, 2728.  
 Crineid, 2870.  
 Cristalline, 2795.  
 "Crolon" chloral, *see Butyl chloral.*  
 Croton oil, cellulose nitrate and, 2793.  
*Crotonolic acid, see Tiglic acid.*  
 Crude fiber, 10.  
 Crutch top, celluloid, 2741.  
 Crystallate, 2870.  
 Crystallin, 2795.  
 Crystalline, 1893.  
*Crystallizable acetic acid, see Acetic acid.*  
 Crystalloid, 2669, 2670.  
 Crystallos, 2890.  
 Crystal violet, leuco bases of, 2884.  
*Cubic saltpeter, see Sodium nitrate.*  
 Cuffs, celluloid, 2706.  
 Cuiette, 2802.  
 Cultures, growth of, in collodion sacs, 2785.  
*Cumarin, see Coumarin.*  
 Cumarone, cellulose acetate solvent, 3031.  
*p-Cumarone, cellulose ester solvent, 2541.*  
 Cumarone, reducing inflammability celluloid by, 2752.  
 Cumene, treatment of cellulose by, 236.  
 —, paint remover containing, 2566.  
 Cumene nitrate, 2967.  
 Cummer drier, 754, 773.  
*Cumol, see Cumene.*  
 Cumyl-desoxyn, 236.  
*Cuoxam, same as Cuprammonium cellulose.*  
 Cupping, celluloid apparatus for, 2741.  
 Cuprammonium, casein and, 70.  
 —, dissolving cellulose by, 68.  
 —, dissolving cellulose nitrate by, 1728.  
 —, dissolving hydrocellulose by, 138.  
 —, preparation of, 70.  
 —, —, Wright process, 70.  
 —, separating cellulose from cellulose nitrate by, 1666.  
 —, solubility cellulose nitrate in, 1600.  
 —, solutions of, constants, 79.  
 —, —, stabilizing, 74.  
 —, stability of, increasing, glycerol for, 74.  
 Cuprammonium, stability of, mannite for, 74.  
 —, waterproofing with, 88.  
 Cuprammonium cellulose, 2, 2883.  
 —, artificial filaments of, 2652.  
 —, constants of, 79.  
 —, viscosity, 1742.  
*Cuprammonium cellulose, see also Cellulose, cuprammonium.*  
 Cuprammonium chloride, 81.  
 Cuprammonium salts, 80.  
 Cuprammonium silk, cellulose for, purification, 29.  
 Cuprammonium solution, differentiation cotton by, 502.  
 Cuprammonium solutions, preparing, 46.  
 —, stability of, 75.  
 —, viscosity, 46.  
 Cuprammonium sulfate, 80.  
 Cuprate silk, 86.  
*Cupric, see Copper (ic).*  
*Cuprous, see Copper (ous).*  
 Curcuma, 2875.  
 Curcumine, 2875.  
 Cuticoid, 2795.  
 Cuticula, 529.  
*Cuticular tissues, see Culin.*  
 Cutin, 259, 354, 498, 529, 530.  
 —, estimation of, 355.  
 Cutocellulose, 11, 333.  
 Cutoclodion, 2795.  
 Cutose, 8, 11.  
*Cyamellone, see Mellonic acid.*  
 Cyanamide, 807, 1006A.  
 —, concentrating, 929.  
 —, guanidine from, 933.  
 —, hydrolysis of, 928.  
 —, manufacture of, 927.  
 —, manufacture of, ammonia from, 932.  
 —, manufacture of, cyanides for, 926.  
 —, manufacture nitric acid from, 925.  
 —, manufacture phosphorus pentoxide and, 926.  
 —, manufacture veronal from, 933.  
 —, Muscle Shoals plant, 925.  
 —, nitric acid from, 918.  
 —, nitrostarch stabilizer, 1829.  
 —, thiourea from, 933.  
 —, treating viscose with, 3074.  
 —, urea nitrate from, 933.  
 Cyanaminoformic esters, 929.  
 Cyanates, treating viscose with, 3074.  
*Cyanhydric acid, see Hydrocyanic acid.*  
 Cyanides, 1006A.  
 —, cyanamides from, 926.  
 —, manufacture of nitric acid from, 925.

- Cyanides, nitric acid from, 918.  
 Cyanin, 2871.  
 Cyanogen, oxidation of, 894.  
 Cyanogen iodide, *see* Iodine cyanide.  
 Cyanuric chloride, *see* Tricyanogen chloride.  
 Cycas, starch in, 405.  
 Cycle handle grips, celluloid, 2898.  
 Cyclic ethers, cellulose ester solvent, 2543.  
 Cyclite pentanitrate, 1848.  
 Cycloheptanone, *see* Suberone.  
 Cyclo-hexane, 18.  
 Cyclohexanol, cellulose acetate solvent, 3027.  
 —, cellulose ester solvent, 2548.  
 Cyclohexanol acetate, cellulose ester solvent, 2548.  
 Cyclohexanol formate, cellulose ester solvent, 2548.  
 Cyclohexanone, 2391.  
 —, amyl acetate substitute, 2582.  
 —, cellulose acetate solvent, 3027.  
 Cyclohexanone - benzene, cellulose acetate solvent, 3028.  
 Cyclohexyl acetate, 2393.  
 Cyclopentane, *see* Penta-methylene.  
 Cyclopentanol, cellulose acetate solvent, 3027.  
 —, cellulose ester solvent, 2548.  
 Cyclopentanol formate, cellulose ester solvent, 2548.  
 Cyclopentanone, amyl acetate substitute, 2582.  
 Cyclo-propane, *see* Trimethylene.  
 Cydonia, *see* Quince seed.  
 Cylinder cake, *see* Niter cake.  
 Cylinders, drying, cellulose acetate for protecting, 2991.  
 Cylinders, phonograph, *see* Phonograph cylinders.  
*p*-Cymene, cellulose ester solvent, 2549.  
 Cymol, *see* Cymene.  
*m*-Cymol, *see* *m*-Methylpropylbenzene.  
*p*-Cymol, *see* Cymene.  
 Cymophenol, *see* Carvacrol.  
*o*-Cymophenol, *see* Carvacrol.  
 Cytase, 237, 347.  
 Daguerrotype, 2795, 2799, 2849.  
 Dammar, 1739.  
 —, cellulose, ester solvent, 2541.  
 —, cellulose nitrate lacquer with, 2593.  
 —, cellulose nitrate solvent, 2385.  
 —, reducing inflammability celluloid by, 2752.  
 Dammar, *see* also Resin.  
 Dambon nitrate, 1849.  
 Dambone nitrate, 1849.  
 Dambonit, nitrating, 1844, 1849.  
 Dambonit nitrate, 1848.  
 Dandle wood extract, 1573.  
 Dark room, illumination, collodion safe-lights for, 2875.  
 Daulerine, *see* Atropine.  
 Dead cotton, 503.  
 Deal, wood from, nitrated, 1812.  
 Dean's explosive, 1853.  
 De-arsenication, 1338, 1339.  
 —, plant for, 1343.  
 Decahydronaphthalene, turpentine substitute containing, 2569.  
 Decanitrocellulose, 1650, 1661.  
 Decapant, 3077, 3082.  
 Decoic acid, *see* Capric acid.  
 Decreosoted oil of tar, 2388.  
 Decylic acid, *see* Capric acid.  
 De-esterification, *see* Saponification.  
 Dehydration, alcohol from, rectification, 1728.  
 —, alcoholic, displacement, 2140.  
 —, centrifugal, 2115, 2117.  
 —, displacement, 2140.  
 —, electro-osmose, 2125.  
 Dehydration, *see* also Cellulose nitrate, dehydration.  
 Dehydrothiitoluidine sulfonic acid, diazoamido, 2872.  
 Dekalin, turpentine substitute containing, 2569.  
 Denaby powder, 2070.  
 Denitrating, 1898.  
 Denitrating baths, utilization, 1900.  
 Denitrating, sulfuric acid, 1284.  
 Denitrating, *see* Cellulose, denitrating.  
 Denitrating, *see* Spent acid, denitrating.  
 Densimeter, Bode, 2306.  
 Densitizers, collodion, 2846.  
 Density, determining of cellulose nitrate, 2306.  
 Dental plates, cellulose nitrate for, 2663.  
 Dentifrice, calcium hydrate for, 3080.  
 —, viscose for, 3080.  
 Dentistry, celluloid in, 2738.  
 —, cellulose acetate in, 3057.  
 Dermatology, 2669.  
 Dermatology, cellulose nitrate in, 2792.  
 Dermin, 2795.  
 Desoxyalizarin, *see* Anthragobin.  
 Detonator, cellulose nitrate compressed as, 1625.  
 —, nitrated hemi-cellulose for, 230.  
 —, nitroerythrite for, 1858.

- Detonator, manufacture, 2981.  
 Devarda's alloy, 2517.  
 Devarda's method, 738.  
 Developers, collodion plate, 2818.  
 —, wet plate, 2818.  
 Devine vacuum dryer, 2154.  
 Dextran, 7.  
 $\alpha$ -Dextrin, 471.  
 $\beta$ -Dextrin, 471.  
 $\gamma$ -Dextrin, 471.  
 Dextrin, acetates of, 187, 188.  
 —, acetylated cellulose, 187.  
 —, conversion into mucilage, 49.  
 —, dialysis of, 1768.  
 —, dry plate preservative, 2828, 2829, 2831.  
 —, manufacture from wash water cellulose nitrate manufacture, 2067.  
 —, mucilage from, 602.  
 —, precipitating cuprammonium cellulose solutions by, 76.  
 —, white, preparing, 442.  
 Dextrin diacetate, cellulose ester solvent, 2549.  
 Dextrin dibutyrate, cellulose ester solvent, 2549.  
 Dextrin distearate, cellulose ester solvent, 2549.  
 Dextrin ditartrate, cellulose solvent, 2549.  
 Dextrin pentacetate, cellulose ester solvent, 2549.  
 Dextrin tetratartrate, cellulose ester solvent, 2549.  
 Dextrin triacetate, cellulose ester solvent, 2549.  
 Dextro-compounds, *see d-Compounds*.  
 Dextrotropic acid, *see Tropic acid*.  
 Dextrose, 6, 186, 398.  
 —, acetosulfates of, 187.  
 —, obtaining from oxycellulose, 176.  
 —, obtaining from tunicin, 326.  
 $\alpha$ -Dextrose penta-acetate, 189, 190, 191, 193.  
 Dextrose pentacetate, converting cellulose into, 192.  
 Dextrose pentacetate, *see also Pent-acetyldextrose*.  
 Dextroso-celluloses, estimation of, 387.  
 Dextroform, 421.  
 Dextrose, converting cellulose into, 201.  
 —, formation of, from cellulose, 210.  
 —, hydrolysis of cellulose to, 191.  
 Dharwar cotton, constants of, 506.  
 Dhollerah cotton, constants of, 506.  
 —, diameter of fibers, 508.  
 —, length of fibers, 509.  
 Diabetin, *see Levulose*.  
 Diacetic ether, *see Ethyl acetoacetate*.  
 Diacetin, 2278.  
 —, cellulose ester solvent, 2384, 2537, 3033.  
 Diacetin, *see also Glyceryl diacetate*.  
 Diacetochlorhydrin, cellulose ester solvent, 2543.  
 Diacetonearabitic ether, cellulose ester solvent, 2543.  
 Diacetone alcohol, 2382, 2401.  
 Diacetyl alcohol, *see Diacetone alcohol*.  
 Diacetylcellulose, *see Cellulose diacetate*.  
 Diacetyldioxime, *see Dimethyl glyoxime*.  
 Dialkalicyanamide, 930.  
 Dialuramide, *see Uramil*.  
 Dialkyl oxalates, cellulose ester solvent, 2540.  
 Dialysis, cellulose nitrate sacs for, 2785.  
 —, collodion films for, 1773.  
 —, pressure, collodion films for, 1773.  
*p*-Diamido-diphenyl, *see Benzidine*.  
*o*-Diamido-ditolyl, *see Tolidin*.  
 Diamidogen sulfate, *see Hydrazine sulfate*.  
*Di-amido-phenol*, *see Amidol*.  
 Diamines, dissolving cellulose by, copper and, 72.  
 Diamine sulfate, *see Hydrazine sulfate*.  
 3:4-Diaminobenzoic acid, cellulose ester solvent, 2544.  
*p*-Diaminodiphenyl, *see Benzidine*.  
 Diaminotoluene, *see Toluylene diamine*.  
 Di-ammonium citrate, nitrostarch stabilizer, 1828.  
 Diamond black V, 2874.  
 Diamond green, 139.  
 Diamonds, cleaning, nitric cake for, 807.  
 Diamylene, 2494.  
 Diamyl oxalate, cellulose ester solvent, 2536.  
 Diamyl ether, *see Amyl oxide*.  
 Diamyl phthalate, cellulose ester solvent, 2538.  
 Dianisidin, cellulose acetate solvent, 3040.  
 —, dyeing cellulose acetate by, 3055.  
 Diaphragm, asbestos, 335.  
 —, electrolytic, cellulose for, 334.  
 Diapositives, 2865.  
 Diapositives, cellophane for, 3075.  
 Diaspon, 2970.  
 Diaspongelatine, 1632, 2959, 2970.

- Diastase, 343, 400.  
 —, action of, on starch, 467.  
 —, hydrolyzing starch by, 468.  
 —, precipitating cuprammonium cellulose solutions with, 76.  
 Diastases, 189.  
*Dialerebinic anhydride*, see *Terebic acid*.  
*Diazoamidobenzol*, see *Diazoamidobenzene*.  
 Diazobenzene nitrate, 1865.  
*Diazobenzolanilid*, see *Diazoamidobenzene*.  
 Diazodiamidodehydrothiotoluidine sulfonic acid, 2872.  
 Diazoperchlorate, 1859.  
*Diazobenzolanilide*, see *Diazoamidobenzene*.  
 Dibenzamin, nitrostarch stabilizer, 1828.  
 Dibenzenesulfo - *p*-cresol, cellulose ester solvent, 2547.  
 Dibenzenesulfo - 2,7 - dioxynaphthalin, cellulose ester solvent, 2547.  
*Dibenzoyl*, see *Benzil*.  
 Dibenzylbenzenesulfamid, cellulose ester solvent, 2547.  
 Dibenzyl-*p*-toluenesulfamid, cellulose ester solvent, 2547.  
 Dibenzyl - *p* - toluenesulfanilid, cellulose ester solvent, 2547.  
 Dibenzyl - *p* - toluenesulfoimid, cellulose ester solvent, 2547.  
 Dibrombenzene, 2490.  
 Dibromdinitrofluorescein, 2874.  
*Dibromgallic acid*, see *Gallobromol*.  
*Dibrommethane*, see *Methylene bromide*.  
*Dibrompropane*, see *Propylene bromide*.  
*Dibromtrioxybenzoic acid*, see *Gallobromol*.  
 Dibutyl oxalate, cellulose ester solvent, 2536, 3032.  
*Dicalcium phosphate*, see *diCalcium phosphate*.  
 Dichloracetic acid, manufacture, 3011.  
 Dichloracetone, cellulose acetate solvent, 3030.  
*Dichlorethane*, see *Ethylene chloride*.  
*a-Dichlorethane*, see *Ethylene chloride*.  
*Dichlorethylchloride*, see *Methyl chloroform*.  
 Dichlorethylene, 2391.  
 Dichlorethylene, cellulose acetate solvent, 3022, 3025.  
*Dichlorethyl oxide*, see *Dichloroether*.  
 Dichlorbenzene, removing arsenic by, 1110, 1342.  
 Dichlorfluorescein, 2871.  
 Dichlorhydrin, 1783, 2384, 2387, 2390.  
 Dichlorhydrin, cellulose acetate solvent, 3034, 3039.  
*Dichloromethane*, see *Methylene dichloride*.  
*Dichloropropane*, see *Propylene chloride*.  
*Dichlorpropyl alcohol*, see *Dichlorhydrin*.  
 Dichroism, 49.  
 Dieresylglyceryl ether, cellulose ester solvent, 2537, 3033.  
 Dieresyl phosphoric acid amyl ester cellulose ester solvent, 2541.  
 Dieresyl phosphoric acid ethyl ester cellulose ester solvent, 2541.  
 Dieresyl phosphoric acid methyl ester, cellulose ester solvent, 2541.  
 Dicyanin, 2874.  
 Dicyandiamidine, cellulose ester solvent, 2552.  
 Dicyanamide, manufacture, 930, 932.  
 —, treating viscose with, 3074.  
 Dicyclohexyltoluenesulfonamide, cellulose acetate solvent, 3041.  
*Didymia*, see *Didymium oxide*.  
 Didymium oxide, catalyst, of, 1111, 1158.  
 Dielectric condenser, cellulose acetate for, 3050.  
*Diethideneammonium thiocarbamate*, see *Carbothialdine*.  
*Diethyl acetal*, see *Acetal*.  
 Diethyl adipate, cellulose ester solvent, 2536.  
*Diethyl aldehyde*, see *Acetal*.  
 Diethylamine, cellulose acetate solvent, 3037.  
 Diethylbarbituric acid, cellulose acetate solvent, 3037.  
 Diethylbromacetyl-urea, cellulose ester solvent, 2551.  
*Diethylcarbonic ether*, see *Ethyl carbonate*.  
 Diethyldiphenylurea, 2004, 2960.  
 Diethyldiphenyl urea, cellulose acetate solvent, 3037.  
 Diethyldiphenyl-urea, cellulose ester solvent, 2552.  
 Diethylsilicate, reducing inflammability cellulose nitrate by, 1787.  
*Diethyl disulfide*, see *Ethyl bisulfide*.  
 Diethyl ether, 2388.  
*Diethyl ether*, see also *Ether*.  
*Diethylenediamine*, see *Piperazine*.



- Diethylidene diisocarbamate*, see *Carbothialdine*.  
*Diethylmalonyl urea*, cellulose acetate solvent, 3037.  
*Diethylnitrosamine*, see *Nitrosodiethylene*.  
*Diethyl oxalate*, reducing inflammability, cellulose nitrate by, 1789.  
*Diethyl oxalate*, see also *Ethyl oxalate*.  
*Diethyl isophthalate*, cellulose ester solvent, 2538.  
*Diethylsulfone*, cellulose ester solvent, 2536.  
*Diethylsulfonodimethylmethane*, cellulose ester solvent, 2545.  
*Diethylsulfonodimethylmethane*, see also *Sulfonal*.  
*Diethylsulfonemethylethylmethane*, cellulose ester solvent, 2545.  
*Diethylsulfonemethylethylmethane* see also *Trional*.  
*Diethyl tartrate*, cellulose acetate solvent, 3036.  
Diffraction gratings, replicas, 2911.  
*Diflammyp*, 2970.  
*Diformin*, cellulose acetate solvent, 3033.  
*Diformin*, see also *Glycerol diformate*.  
Diffusion phenomena, collodion membranes for, 1768.  
*Diglucoase octacelate*, see *Octacetyldiglucoase*.  
*Diglycerol*, 2389.  
—, cellulose ester solvent, 2537.  
*Dihydroxybenzene*, cellulose ester solvent, 2550.  
*Dihydrocamphene nitrate*, 2520.  
*Dihydroxyanthraquinone*, see *Alizarine*.  
*Dihydroxy-asobenzene*, see *Azophenol*.  
*Dihydroxybenzene (m.)*, see *Resorcinol*.  
*Dihydroxybutyric acid*, 172.  
—, cellulose nitrate decomposition product, 1708.  
*Dihydroxydiphenyldimethylmethane*, cellulose acetate solvent, 3031.  
*Dihydroxydiphenylsulfone*, cellulose ester solvent, 2548.  
*Dihydroxylamine-sulfuric acid*, 1258.  
*m-Di-iodoaniline*, see *Iododiamine*.  
*Iodoethane*, see *Ethylene iodide*.  
*Dicodofluorescein*, 2871, 2872.  
*Diiodomethane*, see *Methylene iodide*.  
*Diisopropylidenacetone*, see *Phorone*.  
*Diluents*, see *Nitro benzene*, *benzene*, *water*, *alcohol*, etc.  
*Dimethylacetal*, 2385.  
*Dimethylacetic acid*, see *iso-Butyric acid*.  
*Dimethyl adipate*, cellulose ester solvent, 2536.  
*Dimethylamidoazobenzene*, 2299, 2367.  
*Dimethylamino - b-methyl-coumarin*, cellulose ester solvent, 2542.  
*Dimethyl-amido-benzene*, see *Xylidine*.  
*Dimethylaniline*, 962, 2337, 2529.  
—, cellulose ester solvent, 2552.  
—, cellulose nitrate gelatinizer, 1885.  
*Dimethylbenzene*, see *Xylene*.  
*Dimethyl-cyclohexanone*, cellulose acetate solvent, 3028.  
*Dimethylcyclohexyl carboxylic acid*, cellulose ester solvent, 2548.  
*Dimethyl ether*, 2387.  
*Dimethylethylcarbinol*, see *Amyl alcohol (1er)*.  
*Dimethylethyl carbinol*, see *Amylene hydrate*.  
*Dimethylethylcarbinol*, acetate, 2487.  
*s-Dimethylethylene nitrate*, 2964.  
*2,5-Dimethylfuran*, 42, 407.  
*Dimethylinosite nitrate*, 1848.  
*Dimethyl ketal*, see *Acetone*.  
*Dimethyl ketone*, see *Acetone*.  
*Dimethylnaphthalene*, cellulose ester solvent, 2539.  
*Dimethylnitrosamine*, see *Nitrosodimethylene*.  
*Dimethyloxycetic acid*, see *iso-Oxybutyric acid*.  
*Dimethyloxalic acid*, see *iso-Oxybutyric acid*.  
*Dimethyloxiquinazoline*, see *Antipyrine*.  
*Dimethylpiperazine tartrate*, see *Lycetol*.  
*Dimethylphenyl-carbamide*, cellulose ester solvent, 2544.  
*Dimethyl o-phthalate*, 2393.  
*Dimethyl phthalate*, paint remover containing, 2567.  
*Dimethyl-p-phenylenediamine*, action on lignocellulose, 262.  
*Dimethylprotocatechuic acid*, see *Verrucic acid*.  
*Dimethylpyridine*, see *Lutidine*.  
*Dimethylquinolin ethylate*, 2871, 2872.  
*Dimethyl sulfate*, acetating cellulose in presence of, 3009.  
*Dimethylxanthine*, see *Theobromine*.  
*Finaphthyl carbonate*, cellulose ester solvent, 2539.  
*Dinaphthyl ketone*, cellulose ester solvent, 2542.  
*Dinaphthyl phosphoric acid amyl ester*, cellulose ester solvent, 2541.  
*Dinaphthyl phosphoric acid ethyl*

- ester, cellulose ester solvent, 2541.
- Dinaphthyl phosphoric acid methyl ester, cellulose ester solvent, 2541.
- Dinitroacetylcellulose, reducing inflammability cellulose nitrate by, 1790.
- Dinitroacetin, 2384.
- Dinitroalkyloxamides, 1784.
- m*-Dinitro-*o*-amidophenol acid, see Picramic acid.
- Dinitrobenzene, 1810, 1825, 1868, 2382, 2385, 2962, 2965, 2970, 2973, 2974, 2975.
- , blasting fuse of, 1850.
- , cellulose ester solvent, 2544.
- , cellulose nitrate solvent, 2384, 2599.
- meta*-Dinitrobenzene, cellulose ester solvent, 2544.
- Dinitrocellulose, 1641, 1644, 1680, 2969.
- , energy in foot pounds of, 1794.
- , products of combustion of, 1794.
- Dinitrodialkylamides, 1784.
- Dinitrodiethylloxamid, 1784.
- Dinitrodimethylloxamid, 1784.
- Dinitrodiphenylamine, cellulose ester solvent, 2553.
- Dinitroglycerol, 2976.
- Dinitroglycogen, 1855.
- Dinitromonochlorhydrin, 2962.
- Dinitronaphthalene, 282, 1825, 1855, 2968.
- Dinitrophenal, 2962, 2965.
- , analysis, nitron for, 2316.
- Dinitrotoluene, 1447, 1764, 1810, 1825, 1868, 2389, 2966, 2974, 2976.
- , cellulose ester solvent, 2544.
- , cellulose nitrate solvent, 2384.
- Dinitroxylene, 1825.
- , cellulose ester solvent, 2544.
- , reducing inflammability cellulose nitrate by, 1785.
- 4,6-Dinitro-*m*-xylene, 1686.
- m*-Dinitroxylene, cellulose ester solvent, 2545.
- Diophtichrome screen color plate, 2877.
- Diorama, 2797.
- Diose, 6.
- Dioxyacetone, 6.
- Dioxyanthragol, see Anthrarobin.
- Dioxybutyric acid, 19, 20.
- o*-Dioxybenzene, see Pyrocatechin.
- as-o*-Dioxybenzoic acid, see Protocatechuic acid.
- Dioxybutyric acid, oxycellulose yielding, 15.
- Dioxydiphenyldiethylmethane, cellulose ester solvent, 2542.
- Dioxydiphenylethylmethylethylmethane, cellulose ester solvent, 2542.
- Dioxyditolylidimethylmethane, cellulose ester solvent, 2542, 2547.
- Dioxyhendecoic acid, see Dioxyundecylic acid.
- Dioxynaphthyl ketone, cellulose ester solvent, 2542.
- a-b*-Dioxypropionic acid, see Glyceric acid.
- Dioxypyridinecarbonic acid, see Citrazinic acid.
- Dioxysuccinic acid, see Tartaric acid.
- Dioxytoluene, see Orcin.
- Dioxytriphenylphthalide, see Phenolphthalein.
- Dipenteneglycol, see Terpin hydrate.
- Dipentene, see Diamylene.
- Diphenyl, 2490.
- Diphenyl acetylene, see Tolane.
- Diphenyl ether, cellulose ester solvent, 2546.
- , cellulose nitrate gelatinizer of, 1868.
- Diphenylamine, 963, 1708, 1714, 1763, 2317, 2319, 2340, 2360, 2369.
- , action on lignocellulose, 262.
- , cellulose ester solvent, 2553.
- , determination of, 2336.
- , determining stability cellulose nitrate by, 2335, 2336.
- , effect of on heat test of cellulose nitrate, 2334.
- , nitrostarch stabilizer, 1841.
- , reaction with lignocellulose, 262.
- , smokeless powder containing, 1764.
- , stabilizer, 2942.
- Diphenylamine blue, 165.
- Diphenylamine test, masking, 904.
- Diphtheria toxin, see Toxins.
- Diphenylbenzidine, cellulose ester solvent, 2553.
- Diphenyl carbonate, cellulose ester solvent, 2539.
- Diphenyl - *endo* - *anilo* - hydrotriazole, is Nitron, which see.
- Diphenylegedianilodihydrotriazole, 2316.
- o*-Diphenyleneethylene, see Phenanthrene.
- β*-Diphenylenemethane, see Fluorene.
- Diphenylethylene, see Stilbene.
- Diphenyl ether, cellulose acetate solvent, 3028.
- Diphenylglyceryl ether, 2392.
- , cellulose acetate solvent, 3033.
- , cellulose ester solvent, 2537.

- Diphenylimide, see Carbazole.*  
*Diphenylketone, see Benzophenone.*  
*Diphenylmethylaniline, see Methyl-diphenylamine.*  
*Diphenyloxamide, see Oxanilide.*  
 Diphenylphosphoric acid amyl ester, cellulose ester solvent, 2541.  
 Diphenylphosphoric acid cresyl anilid, cellulose ester solvent, 2540.  
 Diphenylphosphoric acid cresyl ester, cellulose ester solvent, 2540.  
 Diphenylphosphoric acid ethyl anilid, cellulose ester solvent, 2540.  
 Diphenylphosphoric acid ethyl ester, cellulose ester solvent, 2540, 2541.  
 Diphenylphosphoric acid methyl anilid, cellulose ester solvent, 2540.  
 Diphenylphosphoric acid methyl ester, cellulose ester solvent, 2540, 2541.  
 Diphenylphosphoric acid naphthyl anilid, cellulose ester solvent, 2540.  
 Diphenylphosphoric acid naphthyl ester, cellulose ester solvent, 2540.  
 Diphenylphosphoric acid phenyl anilid, cellulose ester solvent, 2540.  
 Diphenylphosphoric acid phenyl ester, cellulose ester solvent, 2540.  
 Diphenyl phthalate, cellulose ester solvent, 2538.  
*Diphenylsulfone, see Sulphobenzide.*  
*s-Diphenylthiocarbamide, cellulose ester solvent, 2545.*  
 Diphenyl urea, 324.  
 —, cellulose ester solvent, 2540.  
*Diphenylurea, see also Carbanilid.*  
*Diphosgene, see Trichlor-methyl-chloroformate.*  
 Dip rods, 1484.  
*Dipropyl barbituric acid, see Proponal.*  
*Dipyridyl hexahydrate, see Nicotine.*  
*Diquinoyl, see Diquinolylige.*  
 Diresorcinol, 544.  
*Diresorcinolphlein, see Fluorescein.*  
 Disaccharides, 6, 7, 8.  
 Disaccharoses, 6.  
 Dish, celluloid, 2717, 2916, 2917.  
 Dish covers, celluloid, 2917.  
 Discus, celluloid, 2728.  
 Disilicic esters, reducing inflammability cellulose nitrate by, 1787.  
 Disinfecting, sulfur dioxide for, 1099.  
 Dispersoids, 36.  
 Distillation, cellulose, 41.  
 —, starch, 41.  
 —, sugar, 41.  
 —, vacuum process for, 818.  
 Di - p - sulfo - 2,7 - dioxynaphthalin, cellulose ester solvent, 2547.  
 *$\beta$  - Di - thio - oxybenzoic acid, see  $\beta$  - Dithio-salicylic acid.*  
 Ditz's test, 180.  
 Dodecanitrocellulose, 1650.  
*Dodecoic acid, see Lauric acid.*  
 Dogs, digestion cellulose by, 345.  
 Doll heads, celluloid, 2730.  
 Dolls, celluloid, 2729.  
 Dominoes, celluloid, 2728.  
 Donarite, 2970.  
 Douglas fir, composition of, 261.  
 Douglas pumps, 1393.  
 Downingtown diaphragm screen, 2112.  
 Dragonit, 2970.  
 Dragon's blood, 401.  
 Dragon's blood, coloring cellulose nitrate by, 2790.  
 Dramatine, 3076.  
 Dress shields, celluloid, 2711, 2741.  
 Dress stiffeners, celluloid, 2710.  
 Driers, Cammer, 773.  
 Drying, Passburg system, 2154.  
 Drying stoves, 2215.  
 Dry plate, blisters in, 2836.  
 —, cellulose nitrate, 2885.  
 —, development of, 2836.  
 —, fog in, 2836.  
 —, manipulation of, 2836.  
 —, pinholes in, 2836.  
 —, preservatives for, 2828.  
 —, —, acacia for, 2828, 2830.  
 —, —, albumen for, 2828.  
 —, —, aloes for, 2835.  
 —, —, beer for, 2833.  
 —, —, benzoin for, 2829.  
 —, —, catechu for, 2828, 2830, 2834.  
 —, —, champagne for, 2833.  
 —, —, claret for, 2833.  
 —, —, coffee for, 2828, 2833.  
 —, —, copaiiba for, 2830.  
 —, —, copal for, 2829.  
 —, —, dextrin for, 2828, 2829, 2831.  
 —, —, extract rhatany for, 2834.  
 —, —, fir shoots for, 2834.  
 —, —, formic acid for, 2828.  
 —, —, gallic acid for, 2832.  
 —, —, gelatin for, 2829.  
 —, —, glycerol for, 2828.  
 —, —, ginger wine for, 2833.  
 —, —, guaiac for, 2828, 2829.  
 —, —, honey for, 2828.  
 —, —, Iceland moss for, 2834.  
 —, —, jalap for, 2829.  
 —, —, jujube paste for, 2834.  
 —, —, laudanum for, 2828, 2833.  
 —, —, licorice for, 2834.  
 —, —, licorice juice for, 2830.  
 —, —, linseed for, 2834.  
 —, —, malt liquor for, 2828.  
 —, —, malt vinegar for, 2834.

- Dry plate, preservatives for, mastic for, 2829, 2830, 2834.  
 —, —, milk for, 2828, 2834.  
 —, —, meta-gelatin for, 2830.  
 —, —, molasses for, 2830.  
 —, —, morphine for, 2828.  
 —, —, morphine acetate for, 2828.  
 —, —, morphine hydrochlorate for, 2833.  
 —, —, mustard seeds for, 2833.  
 —, —, nux vomica for, 2828.  
 —, —, oil anise for, 2830.  
 —, —, oil citron for, 2830.  
 —, —, oil clove for, 2830.  
 —, —, oil rose for, 2830.  
 —, —, oil rosemary for, 2834, 2835.  
 —, —, oil thyme for, 2830.  
 —, —, oxymel for, 2830.  
 —, —, Peru balsam for, 2830.  
 —, —, pyrogallie acid for, 2828.  
 —, —, quassia for, 2828, 2834.  
 —, —, quassia camphor for, 2828.  
 —, —, quince seed for, 2834.  
 —, —, quinquina for, 2828.  
 —, —, raisins for, 2834.  
 —, —, raspberry syrup for, 2828.  
 —, —, resin for, 2829.  
 —, —, rhatany for, 2828.  
 —, —, safflower for, 2834.  
 —, —, sodium acetate for, 2832.  
 —, —, starch for, 2834.  
 —, —, sugar for, 2828.  
 —, —, sumac for, 2834.  
 —, —, syrup for, 2828.  
 —, —, tannin for, 2828, 2831, 2833.  
 —, —, tea for, 2833.  
 —, —, tobacco for, 2833, 2834.  
 —, —, tolu balsam for, 2830.  
 —, —, vanilla for, 2830.  
 —, staining, 2836.  
 D. S. gun, 2933.  
 Dualin, 1819, 2970.  
 Dulcit, nitrating, 1843.  
 iso-Dulcit, nitrating, 1843.  
 Dulcit hexanitrate, 1848.  
 Dulcit nitrate, 1848.  
 Dulcitol, 404.  
 Dulcitol hexanitrate, 1865.  
 Dulcitol nitrate, see also Nitrodulcitol.  
 Dulcitol pentanitrate, 1866.  
 iso-Dulcitol trinitrate, 1846.  
 Dulseose nitrate, 1848.  
 iso-Dulcit, see also Rhamnose.  
 Dumas method nitrogen determination, 2315.  
 Dunnite, 2970.  
 Du Pont powder, 2488, 2501, 2552.  
 Duplicating sound record, see Phonograph record.  
 Duranoid, 2670.  
 Duratex, 2607.  
 Durene, see Tetramethyl-benzene.  
 Duriron, 956, 1321, 1322.  
 Dyrol, see Durene.  
 Dutch liquid, see Ethylene chloride.  
 Dyeing, cellulose acetate, 3055.  
 —, differential, 46.  
 —, nitrostarch in, 1819.  
 Dyes, fluorescent, sensitizing action of, 2873.  
 —, sensitizing action of fluorescent, 2873.  
 Dyestuff absorption, 66.  
 —, absorption of, by cellulose, 63.  
 —, affinity of, for oxycellulose, 165.  
 —, enhancing affinity of cellulose for, 45, 46.  
 —, manufacture, sulfur trioxide in recovery of, 1133.  
 Dyes, sulfonation, niter cake for, 804.  
 Dyestuffs, use of, for actinometric purposes, 2884.  
 Dynamite, 1619, 1635, 2381, 2955, 2973.  
 —, Atlas, 1819.  
 —, extra, 2970.  
 —, Krummel, 1810.  
 —, nitrated straw and nitroglycerol, 1872.  
 —, waste acids in manufacture of recovery, 1208.  
 Dynamogene, 1815.  
 Dynamometer, 2759.  
 Dynobel, 2970.  
 —, 3, 2960.  
 —, 4, 2960.  
 Eagle spirits, 2409.  
 Ear, artificial, celluloid, 2744.  
 Ear drum, celluloid, 2702.  
 Ear expander, celluloid, 2703.  
 Ear screen, celluloid, 2703.  
 Ear trumpet, celluloid, 2703.  
 Earthquakes, artificial, cellulose nitrate for producing, 1635.  
 Eberth-Coli bacillus, cellulose nitrate membranes for separation, 1775.  
 Ebonite, 2603.  
 —, cellulith as substitute for, 338.  
 —, cements for, celluloid lacquers for, 2579.  
 —, imitation, cellulith for, 338.  
 —, storage acids in vessels coated with, 2958.  
 —, viscose for, 3081.

- Ebony, imitating celluloid for, 2722.  
 Eburnum, 2878.  
 Eburnum, 2850.  
 E. C. dynamite, 2974.  
 Ecorite, 2603.  
 E. C. powder, 2905, 2971, 2973.  
 —, improved, 2975.  
 —, new, 2975.  
 E. C. powder, stability, determining, 2328.  
 —, velocity of, 1633.  
 E. C. sporting powder, 2971.  
 Edestin, collodion membranes treated with, 1775.  
 Edestin, cellulose ester solvent, 2550.  
 Edisto cotton, constants of, 505.  
 Eel grass, treatment of, 338.  
 Effervescing mixtures, niter cake in, 806.  
 Egerton's reagent, 2337.  
 Eggs, acid, 1274.  
 —, preservation, celluloid lacquers for, 2579.  
 —, —, cellulose nitrate for, 2599.  
 Egyptian cotton, *see also* Cotton, Egyptian.  
 —, composition of, 531.  
 —, diameter of fibers, 508.  
 —, length of fibers, 509.  
 —, wax in, 535.  
 Ejector, Campbell, 763.  
 Ekström's acid cellulose, 148.  
 Elaidinic acid, *see also* Elaidic acid.  
 Elamite, 104.  
 Elastin, 2795.  
 Elastol, cellulose acetate solvent, 3039.  
 Elastoskin, 1693, 2795.  
 Elastozon, 2669.  
 Elayl chloride, *see* Ethylene chloride.  
 Electric condensers, cellulose acetate for, 3050.  
 Electrical conductors, cellulose nitrate for, 2598.  
 Electrical industries, cellulose nitrate in, 2597.  
 Electric insulation, celluloid for, 2700.  
 Electricity, celluloid applications in, 2699.  
 Electric light filaments, *see* Filaments, electric light.  
 Electric machine plates, cellulose nitrate for, 1766.  
 Electric machines, static, cellulose nitrate for, 1766.  
 Electrodes, galvanic battery, cellulose nitrate for, 2598.  
 —, secondary battery, cellulose nitrate separators for, 1893.  
 Electrolytes, coagulating starch by, 403.  
 Elemi, *see also* Resins.  
 —, amyl acetate as solvent for, 2491.  
 Elianite, 1003, 1321.  
 Elm, ash in, 244.  
 —, cellulose in, 244.  
 —, constants of, 244.  
 —, lignin in, 244.  
 —, moisture in, 244.  
 —, pectic matter in, 244.  
 —, protein in, 244.  
 Email-cloisonne, 2722.  
 Emailite, 3057, 3089.  
 Embedding cotton, 2780.  
 Emerald powder, 2970, 2971.  
 Emery wheels, celluloid, 2697.  
 Emmolotype, 2850.  
 Empire powder, 2970.  
 Empyreumatic oil of juniper, *see* Cade, oil of.  
 Emulsin, 189, 193.  
 —, activity of, in presence cellulose nitrate, 1770.  
 Emulsion, alcohol recovery by, 2558.  
 —, ether recovery by, 2558.  
 —, collodion, 2836.  
 —, orthochromatic, 2869.  
 —, orthochromatizing, 2876.  
 —, panchromatic, 2872.  
 —, ripening, 2841.  
 —, support, 2798.  
 Emulsoids, 36.  
 —, hydrated, 30.  
 —, viscosity of, 1749.  
 Enamel, celluloid lacquers for, 2579.  
 Enamel collodion, 2905.  
 Enamel, collodion positives on, 2799.  
 —, concentrating sulfuric acid in, 1363.  
 —, removing, solvents for, 2562.  
 —, shæe, celluloid, 2709.  
 Enamel cloth, *see* Cloth, enamel.  
 Enamel, steel, resistance to acetic acid, 2998.  
 Enameled iron, concentrating acid in, 1363.  
 Enameled leather, *see* Leather, enameled.  
 Enameline, 2904.  
 Enameling positives, 2860.  
 Enanthaldehyde, *see* Oenanitol.  
 En-jecanitrocellulose, 1650.  
 Endoenzymes, 343.  
 Engelmann spruce, composition of, 260.  
 English sulfuric acid, 1007.  
 Engraved plates, *see* Plates, engraved.  
 Enneanitrocellulose, 1650, 1661.

- Engraving, photography in, 2869.  
*n-Ennoic acid*, see *Pelargonic Acid*.  
 Enzymes, action of, on cellulose, 237  
 —, activity in presence cellulose nitrate, 1770.  
 —, amylolytic, 562.  
 —, cellulose-cleaving, 237.  
 —, dialysis of, 1768.  
 —, digestion cellulose by, 346.  
 —, purifying cotton by, 562.  
*Eos*, 2869.  
*Eosine*, 2870.  
 —, bluish, 2874.  
 —, silver salt of, 2870.  
*Eosine silver P*, 2870.  
*Eosine silver R*, 2870.  
*Epichlorhydrin*, 1784, 1909, 2387, 2389, 2390.  
*Epidiformin*, cellulose acetate solvent, 3033.  
*Epsom salts*, see *Magnesium sulfate*.  
*Epyrite*, 2970.  
*Equisetic acid*, see also *Aconitic acid*.  
*Equisetum*, 239.  
*Ergotinic Acid*, see *Ergotic acid*.  
*Ercin*, see *Mesolan*.  
*Eriodendron anfractuosum*, 571.  
*Eryglucin*, 1857.  
*Erysipelas*, cellulose nitrate in treatment of, 2788.  
*Erythric acid*, see *Alloxan*.  
*Erythrin*, see *Erythric acid*.  
*Erythrite*, 1857.  
 —, nitrating, 1857.  
*Erythrite tetracetate*, 183.  
*Erythrite tetranitrate*, 1857.  
*Erythritol*, 1857.  
*Erythroamylose*, 439.  
*Erythrodibromhydrin*, 1861.  
*Erythrodextrin*, 417, 464, 467, 472.  
*Erythrodinitrodibromhydrin*, 1861.  
*Erythrodinitrodichlorhydrin*, 1861.  
*Erythroglucin*, see also *Erythrite*.  
*Erythroglucin*, 1857.  
*Erythrolitmin*, 2300.  
*Erythrol*, see also *Erythrite*.  
*Erythrol*, 1857.  
*Erythrol nitrate*, saponification of, 1861.  
*Erythrol tetranitrate*, melting point of, 1861.  
*Erythromagnite*, see also *Erythrite*.  
 —, 1857.  
*Erythronitrate*, 1860.  
*Erythrose*, 7.  
*Erythruose*, 7.  
*Esculapius*, nitrating, 1874.  
*Esculapius weed*, nitrating, 1623.  
*Esculin*, see *Aesculin*.  
*Esparto*, 327.  
 —, African, ferment from, 344.  
 —, ash in, 244.  
 —, cellulose in, 244.  
 —, celluloses of, 168.  
 —, composition of, 333.  
 —, constants of, 244.  
 —, cuticle in, 327.  
 —, ferment from, 344.  
 —, lignin in, 244.  
 —, moisture in, 244.  
 —, nitrating, 1874, 1875.  
 —, pectic matter in, 244.  
 —, protein in, 244.  
 —, wax in, 327.  
 —, Tripoli, 327.  
*Esparto fiber*, nitration of, 1806.  
*Esparto grass*, 327.  
 —, ferment in, 272.  
*Essence d'Orient*, 2589.  
*Essence of mirbane*, see *Nitrobenzene*.  
*Essence niobe*, see *Methyl benzoate*.  
*Esterification*, see *Cellulose acetalation*, *formylation*, etc.  
 —, methods of, 2500.  
 —, theory of, 39.  
*Esterification of cellulose*, see *Cellulose esterification*.  
*Esteral*, 2300.  
*Etelen*, 2389.  
*Ethal*, see *Cetyl alcohol*.  
*Ethal alcohol*, see *Cetyl Alcohol*.  
*Ethane*, 41.  
*Ethane, tetrachlorinated*, see *Tetrachlorethane*.  
*Ethanedioxyureid*, see *Parabanic acid*.  
*Ethanthiolic acid*, see *Thioacetic acid*.  
*Ethenehydrinsulfonic acid*, see *Ethethionic acid*.  
*Ether, ethyl*, see also *Ethyl ether*.  
 —, dissolving nitroerythrite by, 1860.  
 —, masking diphenylamine test by, 2360.  
*Ether, ordinary*, see *Ether*.  
 —, solubility nitric acid in, 953.  
 —, specifications for, 2259.  
 —, specifications, French, 2267.  
*Ether-acetone*, density of, 2399.  
*Ether-alcohol*, see also *Alcohol ether*.  
 —, limits solubility cellulose nitrate in, 1661.  
 —, solubility cellulose nitrate, in, 1664.  
 —, theory of solution of cellulose nitrate by, 1722.  
 —, viscosity cellulose nitrate solutions, 1744.  
*Ether glue*, 1693, 1694, 2412, 2572, 2789.

- Etherized oil, 2384.  
 Etheroxylin, 1583, 1694.  
 Ether tribasic alcohol, 1596.  
 Etherziline, 1641.  
*Ethidene bichloride*, see *Ethylidene chloride*.  
 Ethoxyacetylborneol, cellulose ester solvent, 2539.  
 Ethoxyacetylmenthol, cellulose ester solvent, 2539.  
 Ethoxyacetylsantalol, cellulose ester solvent, 2539.  
*o*-Ethoxy-*ana*-*mapo*-*benzoyl-amido-quinoline*, see *Quinalgen*.  
*p*-Ethoxy-*formanilid*, see *Formylphenetidine*.  
 Ethylacetanilid, cellulose ester solvent, 2552.  
 Ethyl acetate, 145, 1736, 2278, 2500, 2752, 2969.  
   —, amyl acetate substitute, 2582.  
   —, celluloid lacquer containing, 2578.  
   —, cellulose acetate solvent, 3033.  
   —, cellulose nitrate solvent, 2394.  
   —, cellulose nitrate solvent of nitrobenzene and, 2386.  
   —, colloidizing cellulose nitrate by, 2251.  
   —, dissolving nitric acid by, 1457.  
   —, dissolving nitroerythrite by, 1858, 1860.  
   —, illuminating power of, 2494.  
   —, masking heat test in cellulose nitrate by, 2334.  
   —, solubility acetic acid in, 2999.  
   —, solubility cellulose, nitrate in, 1584.  
   —, solvent of benzene and, 2504.  
   —, viscosity cellulose nitrate in, 1737.  
 Ethyl acetate and alcohol, amyl acetate substitute, 2583.  
 Ethyl acetate and benzene, amyl acetate substitute, 2583.  
*Ethylacetic acid*, see *Butyric acid*.  
 Ethylacet-*o*-nitrochloranilid, cellulose ester solvent, 2547.  
 Ethyl acetoacetate, 145.  
   —, cellulose acetate solvent, 3032.  
 Ethyl acetylsalicylate, cellulose ester solvent, 2537.  
 Ethyl adipate, cellulose ester solvent, 2543.  
 Ethyl alcohol, 2382, 2412.  
   —, colloidizing cellulose nitrate by, 1632.  
 Ethyl alcohol-ethyl ether, viscosity cellulose nitrate in, 1737.  
 Ethyl alcohol, extracting resin from wood by, 289.  
 Ethyl alcohol, formation of, from hydrocellulose, 200.  
   —, manufacture of, peat for, 205.  
   —, —, from sawdust, 206, 281.  
   —, —, sisal for, 202.  
   —, masking diphenylamine test by, 2360.  
   —, purifying cotton by, 562.  
   —, solubility acetic acid in, 2999.  
   —, specifications for, 2259.  
   —, viscosity cellulose nitrate in, 1737.  
 Ethylamine, 2529.  
 Ethyl *m*-amidosulfobenzoate, cellulose ester solvent, 2547.  
 Ethylamine bromide, 2810.  
 Ethylamine chloride, 2810.  
 Ethylamine iodide, 2810.  
 Ethyl-*p*-amino-benzoate, see *Anaesthesia*.  
 Ethylisoamyl ether, 2385.  
 Ethyl anilid, cellulose ester solvent, 2540.  
 Ethyl anilid phosphate, cellulose ester solvent, 2540.  
 Ethylated cellulose, 38.  
*Ethylation*, see *Cellulose*.  
 Ethyl azelate, cellulose ester solvent, 2543.  
 Ethyl benzoate, 2387.  
   —, cellulose acetate solvent, 3035.  
   —, cellulose nitrate solvent, 2394.  
 Ethylbenzyl ether, 2393.  
 Ethyl borate, reducing inflammability cellulose nitrate by, 1786.  
 Ethyl borosalicylate, 2389.  
 Ethyl bromide, dissolving by nitrogen tetroxide, 720.  
   —, Ethyl bromcitrate, 2387.  
   —, Ethyl brombenzoate, 2387.  
   —, Ethyl bromhippurate, 2387.  
   —, Ethyl bromlactate, 2387.  
   —, Ethyl brommesitylenate, 2387.  
   —, Ethyl bromnitrobenzoate, 2387.  
   —, Ethyl bromnitrocitrate, 2387.  
   —, Ethyl bromnitrohippurate, 2387.  
   —, Ethyl bromnitrolactate, 2387.  
   —, Ethyl bromnitromesitylenate, 2387.  
   —, Ethyl bromnitrooxalate, 2387.  
   —, Ethyl bromnitrophthalate, 2387.  
   —, Ethyl bromnitrosalicylate, 2387.  
   —, Ethyl bromnitrosuccinate, 2387.  
   —, Ethyl bromnitrotartrate, 2387.  
   —, Ethyl bromnitrotoluate, 2387.  
   —, Ethyl bromoxalate, 2387.  
   —, Ethyl bromphthalate, 2387.  
   —, Ethyl bromsalicylate, 2387.  
   —, Ethyl bromsuccinate, 2387.  
   —, Ethyl bromtartrate, 2387.

- Ethyl bromtoluate**, 2387.  
**Ethylisobutyl ether**, 2385.  
**Ethylisobutyl oxide**, *see Ethylisobutyl ether*.  
**Ethyl butyrate**, 1736, 2278, 2389, 2507, 2752.  
 —, celluloid lacquer containing, 2578  
 —, cellulose ester solvent, 2536  
 —, cellulose nitrate solvent, 2394.  
**Ethylbutyl ketone**, 2387, 2401  
**Ethyl butyrate**, paint remover containing, 2562  
 —, solubility, 2489  
 —, viscosity cellulose nitrate in, 1737.  
**Ethyl caproate**, cellulose nitrate solvent, 2394  
*Ethyl capronate*, *see Ethyl caproate*  
*Ethyl carbamate*, *see also Urethane*  
 —, cellulose ester solvent, 2536  
*Ethyl carbanilate*, *see also Euphorin*.  
 —, cellulose ester solvent, 2537  
*Ethyl carbolate*, *see Phenetol*  
**Ethyl carbonate**, cellulose ester solvent, 2536  
*Ethyl-carbonic acid*, *see Propionic acid*.  
*Ethyl carhylamine*, *see Ethyl isocyanide*  
*Ethyl cellulose*, *see also Cellulose, ethylated*.  
 —, 2381.  
 —, hydrolysis of, 662  
 —, naphthylamyl ether with, 2541.  
*penta-Ethylcellulose*, properties, 38  
**Ethyl chloracetate**, cellulose acetate solvent, 3034.  
**Ethyl chlorbenzoate**, 2387  
*Ethyl chlorcarbonate*, *see Ethyl chlorformate*.  
**Ethyl chlorcitrate**, 2387  
**Ethyl chlorhippurate**, 2387  
**Ethyl chloride**, 2388, 2393, 3061.  
**Ethyl chlorlactate**, 2387.  
**Ethyl chlormesitylenate**, 2387  
**Ethyl chlornitrobenzoate**, 2387.  
**Ethyl chlornitrocitrate**, 2387.  
**Ethyl chlornitrohippurate**, 2387  
**Ethyl chlornitrolactate**, 2387.  
**Ethyl chlornitromesitylenate**, 2387.  
**Ethyl chlornitrooxalate**, 2387.  
**Ethyl chlornitrophthalate**, 2387.  
**Ethyl chlornitrosalicylate**, 2387.  
**Ethyl chlornitrosuccinate**, 2387.  
**Ethyl chlornitrotartrate**, 2387  
**Ethyl chlornitrotoluate**, 2387.  
**Ethyl chloroformate**, 1736, 2278.  
**Ethyl chloroxalate**, 2387.  
**Ethyl chlorophthalate**, 2387.  
**Ethyl chlorsalicylate**, 2387.  
**Ethyl chlorstearate**, cellulose acetate solvent, 3035.  
**Ethyl chloresuccinate**, 2387.  
**Ethyl chlortartrate**, 2387.  
**Ethyl chlortoluate**, 2387  
**Ethyl cinnamate**, cellulose ester solvent, 2538  
**Ethyl citrate**, 2387  
 —, cellulose nitrate solvent, 2394  
 —, paint remover containing, 2566.  
*n-Ethyl citrate*, *see Ethyl citrate*.  
**Ethyl dextrin acetate**, 662.  
**Ethyl dextrin acetate**, ethoxy number of, 662.  
**Ethyl dicresyl phosphate**, cellulose ester solvent, 2541  
**Ethyl dimaphthyl phosphate**, cellulose ester solvent, 2541.  
**Ethyl diphenyl phosphate**, cellulose ester solvent, 2541  
*Ethyl enanthate*, *see Ethyl oenanthate*  
**Ethylethenyltrichloramide**, cellulose ester solvent, 2544  
**Ethylethenyltrichlor-o-phenylenediamine**, cellulose ester solvent, 2547  
**Ethyl ether**, cellulose nitrate solvent, 2388  
**Ethyl ether-benzyl alcohol**, viscosity cellulose nitrate in, 1737  
*Ethyl (tri) ether of citric acid*, *see Ethyl citrate*.  
**Ethyl ether-ethyl alcohol**, viscosity cellulose nitrate in, 1737.  
**Ethyl ether-methyl alcohol**, viscosity cellulose nitrate in, 1737  
*Ethyl ether of phenol*, *see Phenetol*.  
*Ethyl ethylene*, *see Butylene*  
**Ethyl formate**, 1736, 1885, 22498, 2752  
 —, dissolving nitric acid by, 1467.  
 —, manufacture of, 802.  
 —, viscosity cellulose nitrate 1737.  
**Ethyl glycerol-chlorhydrin**, cellulose acetate solvent, 3034.  
**Ethyl hippurate**, 2387.  
**Ethylideneacetone**, cellulose acetate solvent, 3030, 3041  
**Ethylidene diacetate**, acetaldehyde from, 3002.  
 —, acetic anhydride from, 3002  
 —, cellulose acetate solvent, 3036  
**Ethyl lactate**, 2386, 2387, 2392.  
 —, amyl acetate substitute, 2582.  
 —, cellulose acetate solvent, 3036, 3038.  
 —, cellulose ester solvent, 2540.



- Ethyl levulinate, cellulose nitrate solvent, 2394.  
 Ethyl linoleate, cellulose pitate solvent, 2391.  
 $\alpha$  - Ethylmaltosidheptacetate, 183.  
 Ethyl mesitylenate, 2387.  
 Ethylmethyleacetate, 2385.  
 Ethyl - methyl - ethylene, *see Amylene*.  
 Ethyl methyl ketone, *see also Methyl acetone*.  
 Ethylmethyl ketone, 2397, 2400.  
 Ethyl monosilicate, reducing inflammability cellulose nitrate by, 1787.  
 Ethyl mustard oil, *see Ethyl isothiocyanate*.  
 Ethylnaphthyl ether, 2387.  
 —, cellulose ester solvent, 2543, 2546.  
 —, gelatinizer of, 1868.  
 Ethyl nitrate, 953, 1637, 1710, 2383, 2386, 2387, 2805, 2820, 2821, 2960.  
 —, cellulose nitrate decomposition product, 1708.  
 —, cellulose nitrate solvent of nitrobenzene and, 2386.  
 Ethyl nitrite, 2804.  
 —, cellulose nitrate decomposition product, 1708.  
 Ethyl - *m* - nitro - *p* - amidobenzoate, cellulose ester solvent, 2544.  
 Ethyl nitrobenzoate, 2387.  
 Ethyl nitrocitrate, 2387.  
 Ethyl nitrohippurate, 2387.  
 Ethyl nitrolactate, 2387.  
 Ethyl nitromesitylenate, 2387.  
 Ethyl nitrooxalate, 2387.  
 Ethyl nitrophthalate, 2387.  
 Ethyl nitrosalicylate, 2387.  
 Ethyl nitrosuccinate, 2387.  
 Ethyl nitrotartrate, 2387.  
 Ethyl nitrotoluate, 2387.  
 Ethyl octoate, *see Ethylcaprylate*.  
 Ethyl oleate, cellulose ester solvent, 2536.  
 —, cellulose nitrate solvent, 2391.  
 Ethyl oxalate, 2387, 2752.  
 —, cellulose ester solvent, 2536, 3036.  
 Ethyl oxamate, cellulose ester solvent, 2536.  
 Ethyl oxanilate, cellulose ester solvent, 2540.  
 Ethyl palmitate, cellulose acetate and, 3054.  
 —, cellulose ester solvent, 2536.  
 —, cellulose nitrate solvent, 2391.  
 —, paint remover containing, 2565.  
 Ethyl pentachloranilid, cellulose ester solvent, 2545.  
 Ethyl phenate, *see Phenetol*.  
*o*-Ethyl-phenol, *see Phlorol*.  
 Ethylphenyl carbamate, *see Phenylurethane*.  
 Ethylphenyl ether, cellulose acetate solvent, 3028.  
 Ethyl phenyl oxide, *see Phenetol*.  
 Ethylphenyl urea, cellulose ester solvent, 2546.  
 —, cellulose nitrate gelatinizer, 1868.  
 Ethyl phosphate, cellulose ester solvent, 2540.  
 Ethyl phthalamate, cellulose ester solvent, 2538.  
 Ethyl phthalanilate, cellulose ester solvent, 2538.  
 Ethyl phthalate, 1736, 2278, 2387.  
 —, cellulose acetate solvent, 3035, 3043, 3054.  
 —, cellulose ester solvent, 2538, 2546.  
 —, cellulose nitrate solvent, 2394.  
 —, cellulose nitrate solvent of ethylbenzyl ether and, 2393.  
 —, viscosity cellulose nitrate in, 1737.  
 Ethyl isophthalate, *see Ethyl phthalate (m.)*.  
 Ethyl phthalonate, cellulose ester solvent, 2538.  
 Ethyl pimelate, cellulose ester solvent, 2543.  
 Ethyl propionate, 2506.  
 —, cellulose ester solvent, 2536.  
 —, cellulose acetate solvent, 3032.  
 —, cellulose nitrate solvent, 2394.  
 —, dissolving nitric acid by, 1467.  
 —, viscosity cellulose nitrate in, 1737.  
 Ethylpropionyl, *see Diethylketone*.  
 Ethylisopropyl ether, 2385.  
 Ethylpyridine, *see b-Lutidine*.  
 Ethyl red, 2871, 2874.  
 Ethyl ricinoleate, cellulose nitrate solvent, 2391.  
 Ethylsalicylate, 2387, 2491.  
 —, cellulose ester solvent, 2540.  
 Ethyl sebacate, cellulose ester solvent, 2536, 2543.  
 —, cellulose nitrate solvent, 2394.  
 Ethyl silicate, reducing inflammability cellulose nitrate by, 1787, 1789.  
 Ethyl stearate, cellulose nitrate solvent, 2391.  
 —, cellulose ester solvent, 2536.  
 Ethyl suberate, cellulose ester solvent, 2543.  
*n*-Ethyl succinate, *see also Ethyl disuccinate*.  
 Ethyl succinate, 2387.  
 —, cellulose nitrate solvent, 2394.

- Ethyl (mono) sulfate*, see *Ethylsulfuric Acid*.  
*Ethyl sulphydrate*, see *Ethyl mercaptan*.  
*Ethyl p-sulfoamidobenzoate*, cellulose ester solvent, 2547.  
*Ethyl (di) sulfonemethylethylmethane*, see *Trional*.  
*Ethyl sulfuric acid*, acetating cellulose in presence of, 3009.  
 —, formylating cellulose in presence of, 3016.  
*Ethyl sulfuric acid*, see also *Ethyl hydrogen sulphate*.  
*Ethylsulfuric acid*, 2557.  
*n-Ethyl tartrate*, see *Ethyl tartrate*.  
*Ethyl tartrate*, 2387.  
 —, cellulose acetate solvent, 3035.  
 —, cellulose nitrate solvent, 2394.  
*Ethyl terephthalate*, see *Ethyl phthalate*, (p)  
*Ethyl tetrachloranilid*, cellulose ester solvent, 2545.  
*Ethyl toluate*, 2387.  
*Ethyl p-toluato*, 2392.  
*Ethyl p-toluenesulfamido acetate*, cellulose ester solvent, 2547.  
*Ethyl p-toluenesulfethylanilid*, cellulose ester solvent, 2546.  
*p-Ethyltoluenesulfonamide*, cellulose acetate solvent, 3039.  
*Ethyl p-toluenesulfonate*, cellulose ester solvent, 2546.  
*Ethyl-o-toluidine*, 1736.  
*Ethyl-o-tolyethylcarbamate*, 1736, 2278.  
 —, viscosity cellulose nitrate in, 1737.  
*Ethyl triacetyl gallate*, 2389.  
*Ethyltrichloranilid*, cellulose ester solvent, 2545.  
*Ethyltrichlorisobutyl acetylsalicylate*, cellulose ester solvent, 2538.  
*Ethyltrichlorisopropyl acetylsalicylate*, cellulose ester solvent, 2538.  
*Ethylurethane*, see *Urethane*.  
*Ethyl valerate*, cellulose nitrate solvent, 2394.  
 —, solubility, 2489.  
*Ethyl valerianate*, 2508.  
*Ethyl valerianate*, cellulose acetate solvent, 3036.  
 —, dissolving nitric acid by, 1467.  
*Ethyl violet*, 2872, 2873.  
*Ethylene*, 41, 1783.  
*Ethylene alcohol*, see *Glycol*.  
*Ethylene bromhydride*, see *Glycol bromhydride*.  
*Ethylenecarboxylic acid*, see *Acrylic acid*.  
*Ethylene chlorbromide*, 2434.  
*Ethylene chlorhydrin*, cellulose acetate solvent, 3034.  
*Ethylene chlorhydrin*, see also *Glycol chlorhydrine*.  
*Ethylene cyanhydride*, see *Glycol cyanhydride*.  
*Ethylenediamine*, dissolving cellulose by copper and, 72.  
*Ethylenediaminotrimethylenediamine*, dissolving cellulose by copper and, 72.  
*Ethylene dicarboxylic acid*, see *Succinic acid*.  
*Ethylene dichloride*, 2387.  
*Ethylenethenyldiamine*, see *Lysidine*.  
*Ethylene glycol*, see also *Glycol*.  
*Ethylene glycol*, 1849.  
*Ethylene glycol nitrate*, 1819, 1870.  
*Ethylene glycol*, nitrating, 1870.  
*Ethylenimine*, see *Piperazine*.  
*Ethylene tetrachloride*, 2387.  
*Ethylene tetraiodide*, see *Di-iodoform*.  
*Ethylene trichloride*, 2387.  
*Ethylene trichloride*, cotton treated with, 594.  
*Ethylidene acetate*, amyl acetate substitute, 2582.  
*Ethylidene acetoacetate*, cellulose ester solvent, 2539.  
*Ethylidene diacetate*, 2389.  
 —, amyl acetate substitute, 2582.  
*Ethylidene diethyl ether*, see *Acetal*.  
*Ethylidenedimethylether*, see *Dimethylacetal*.  
*Ethylideneglycolic glycerol*, cellulose ester solvent, 2543.  
*Eucalyptol*, see *Cinrol*.  
*Eucalyptus*, nitrating leaves of, 1806.  
*Eucalyptus leaves*, green, nitrating, 1806.  
*Euchromic acid*, see *Euchroic acid*.  
*Eucol*, see *Guaiacol acetate*.  
*Eugenic acid*, see *Eugenol*.  
*Eugenol*, cellulose ester solvent, 2537, 2543.  
*Eugenol benzyl ether*, 2386.  
 —, cellulose ester solvent, 2543.  
*isoEugenol benzyl ether*, cellulose ester solvent, 2543.  
*isoEugenol*, cellulose ester solvent, 2543.  
*Euguforn*, see *Acetylated guaiacoforn*.  
*Eunymit*, see *Dulcit*.  
*Euphorbiaceae*, starch in, 405.  
*Euresol*, cellulose nitrate with, 2794.  
*Euxanthin*, see *Euxanthic acid*.  
*Everlasting valve*, 1468, 1469, 1470, 1471, 1472.

- Everlasting valve, acid type, double disc, 1472.  
 —, —, extension handle, 1474.  
 —, —, with shield, 1472.  
 Evers denitration process, 1447.  
 Exalgin, cellulose ester solvent, 2545  
 Excelsior, cellulose, 336.  
 Exonite, 2669.  
 Explosif de Casteau No 1, 1854  
 Explosive, liability in case of, 1928.  
 —, Amark's, 1867.  
 —, Bjorkman's, 1804.  
 —, blasting, Peter's, 1817.  
 —, brisance of, 1862.  
 —, cellulose nitrate and nitroglycerol, 1632.  
 —, cellulose nitrate containing, 1623.  
 —, Dean's, 1853.  
 —, D, 2970.  
 —, definition of, 1928.  
 —, detonation velocity of, 1931.  
 —, dynamic concussive energy of, 1801.  
 —, formaldehyde and sodium peroxide, 1699.  
 —, classification, 2024.  
 —, heating, constant temperature apparatus for, 2349.  
 —, heat of decomposition, 1027, 1028.  
 —, heat of formation of, 1628.  
 —, Kolf, 1855  
 —, Lezinsky, 1818  
 —, nitrated straw and nitroglycerol, 1629.  
 —, nitrocellulose-containing, 1623.  
 —, nitroglycerol and nitrated straw, 1629.  
 —, nitrosaccharose and trinitro-glycerol, 1852.  
 —, nitrostarch, ammonium nitrate, 1817.  
 —, —, nitrates and picrates, 1821.  
 —, Peters, 2054.  
 —, sodium peroxide and formaldehyde, 1699.  
 —, Steele's, 1869.  
 —, trench grenade, 1839.  
 —, trench mortar, 1839.  
 Explosive buildings, concrete construction of, 1923.  
 Explosive cotton, 1693.  
 Explosive cotton, *see also Cellulose nitrate*.  
 Explosive gelatin, decomposition, spontaneous, 1633.  
 Explosive paper, 1694.  
 Explosive resin, 1851.  
 Explosive tissue, 1693.  
 Explosive tissue, detection cellulose nitrate in, 2273.  
 —, gelatinized, stability, determining, 2331.  
 —, nitrostarch, 1824, 1825, 1826.  
 Explosives, stability of, *see Stability tests*  
 —, storage, building construction, 1915.  
 —, testing, ultra-violet light for, 2369.  
 —, thermodynamics of, 1622.  
 —, transportation of, 1928.  
 Explosives, *see also Cellulose nitrate; Smokeless powder*.  
 Express dynamite, 2974.  
 Express powder, 2974.  
 Extensibility, *see Viscosity*.  
 Extractives, cellulose, 349  
 Extract rhatany, dry plate preservative, 2834.  
 Extra dynamite, 2970, 2974.  
 Extra powder, 2974.  
 Eye, inflammation of, cellulose nitrate for, 2788.  
 Eye bath, celluloid, 2744.  
 Eye shade, celluloid, 2703.  
 Eyes, artificial, celluloid, 2743.  
 —, doll, celluloid, 2730.  
 Eyelets, celluloid, 2704.  
 Fabrics, *see also Textiles*.  
 —, acid-proof, cellulose nitrate for, 1892.  
 —, airplane, 3049.  
 —, balloon, 3049.  
 —, celluloid, 2710.  
 —, cellulose nitrate, coated, 2574.  
 —, coating, celluloid lacquers for, 2579.  
 —, metallization, cellulose nitrate for, 2645.  
 —, preserving, cellulose nitrate for, 2611.  
 —, printing upon, cellulose nitrate for, 2600, 2616.  
 —, sensitizing, 2847.  
 —, sizing, cellulose in, zinc chloride for, 102.  
 —, stiffening, cellulose nitrate for, 2612.  
 —, waterproof, straw nitrocellulose for, 1803.  
 —, waterproofing, cellulose nitrate for, 2611.  
 Fabrikoid, 2607.  
 Face, protectors for, celluloid, 2703.  
 Fahrenheit, Centigrade equivalent (table,) 1542.  
 Falding chamber, 1213.

- Fans, celluloid, 2712  
 —, lead, 1239.  
 —, —, Kestner, 1375.  
 —, Sirocco, 783.  
 —, stoneware, 1239.  
 Fashion busks, celluloid, 2710  
 Fat, estimation in cellulose, 359  
 —, extraction of, from cotton, 542  
 —, emulsifying, amylolytic enzymes for, 562.  
 Feathers, artificial, viscose for, 3079  
 —, celluloid, 2711.  
 —, cellulose nitrate treatment of, 2381.  
 —, coating, cellulose nitrate for, 2610  
 —, imitation, cellulose nitrate for, 2610.  
 —, ostrich, artificial, cellulose nitrate, for, 2610  
 Feculometer, Boudonngau, 409  
 Feculose, 415.  
 Fehling's solution, formula for, 383  
 Feldspar, 955  
 —, fixation nitrogen with, 917.  
 Felt, imitation, vulcanized fiber for, 105.  
 —, viscose for, 3079  
 Fencholene, 2519.  
 Fenton's reagent, 42  
 Ferments, action of, on starch, 467.  
 Fernandine, 1893.  
 Ferns, fossil, cellulose nitrate casts of, 2784.  
*Ferric, see Iron (ic).*  
*Ferric chloriae, see Iron (ic) chloride.*  
 Ferro-aluminium, catalyst, 917  
 Ferro-chrome, 2431.  
*Ferro-cyanic acid, see Ferro-hydro-cyanic acid.*  
 Ferrocyanides, recovery of, 1085  
 Ferro-manganese, 2431.  
 Ferro-silicon, 1870.  
 —, catalyst, 917, 1122  
 —, concentrating sulfuric acid in, 1358  
 Ferro-silicon, 2948.  
 Ferro-silicon alloys, 1003  
 —, transporting nitric acid in, 957  
 Ferro-titanium, catalyst of, 1111.  
 Ferrotypes, 2849.  
 —, collodion, 2790.  
*Ferrous, see Iron(ous).*  
*Ferrous sulfide, see Iron(ous) sulfide.*  
 Fertilizer, cordite for, 1886.  
 —, niter cake as constituent of, 807  
 —, sulfur as, 1036.  
 Fertilizer stick, 807.  
 Fiber, analysis of, 328.  
 —, coconut, 328.  
 Fiber, coconut, nitrated, 1872  
 —, gelatinized, manufacture of, 105  
 —, soluble, 1693.  
*Fiber, vulcanized, see Vulcanized fiber.*  
 —, artificial, color screens of, 2877.  
 "Fiberless thread," 102.  
 Fiberloid, 2667.  
 Fiberoid, 2667  
*Fibers, asbestos, see Asbestos*  
 —, resisting colors on, cellulose nitrate for, 1888  
 Fibrin, 125  
 —, viscose and, 3082.  
 Fibrocol, 303.  
 Fibrom, 78.  
 —, nitrating, 1881.  
 —, xanthoproteic acid, 1881.  
 Fibrol, 3082  
 Fibroleum, 2603.  
*Fibrolithoid, same as Celluloid.*  
 Fibrox, 1401  
 Fiji cotton, constants of, 505  
 —, diameter of fibers, 508  
 —, length of fibers, 508  
 Filaments, artificial, 2381, 2621  
 —, —, acetic acid in, manufacture of, 2999  
 —, —, albuminoid, 2646  
 —, —, animal, 2646  
 —, —, bleaching, 2640  
 —, —, casein, 2646  
 —, —, cellulose acetate, 3042, 3052  
 —, —, dyeing, 3055, 3056.  
*Filaments, artificial, cellulose acetophosphate, dyeing, see Dyeing*  
 —, —, cellulose nitrate, 1636  
 —, —, cellulose nitrate for, 559  
 —, —, cellulose nitrate, Chardonnet, 2621  
 —, —, —, filter cloths of, 1891  
 —, —, —, increasing tenacity of, 2627.  
 —, —, —, reducing inflammability, 2626.  
 —, —, —, tendering, 349.  
 —, —, —, viscosity of, 1732.  
 —, —, Chardonnet, 1630  
 —, —, coagulation, steam for, ...  
 —, —, cuprammonium, 77, 2381, 2652.  
 —, —, —, coagulation of, 84  
 —, —, —, Linkmeyer process, 82  
 —, —, denitrating, 1898  
 —, —, dyeing, 1894, 2640.  
 —, —, formation, 2626  
 —, —, gelatin, 2646  
 —, —, Glanzstoff, copper value of, 383.  
 —, —, luster of, increasing, 2638.

- Filaments, artificial, manufacture, according to Berl, 38.  
 —, —, Chardonnnet, method, 43.  
 —, —, Langhans' process, 97.  
 —, —, nitrated Ulex Europens for, 328.  
 —, —, oxycellulose and casein for, 177.  
 —, —, Pauly, 143.  
 —, —, preparing, 571.  
 —, —, producing, spinneret, 2634.  
 —, —, "simfli," 336.  
 —, —, softening, sodium ricinoleate for, 77.  
 —, —, solvents in, recovery of, 2557.  
 —, —, spinning, 2628.  
 —, —, sthenosage, 2639.  
 —, —, sthenosage of, 3054.  
 —, —, strengthening, 2639, 3054.  
 —, —, sulfur in, recovery of, 1033.  
 —, —, viscose, 2381, 3064, 3072.  
 —, —, —, twisting, 3072.  
 —, —, waste, formylating, 3015.  
 —, carbon, cellulose nitrate for, 2594, 2645.  
 —, —, manufacture of, 101.  
 —, —, viscose, 2594.  
 —, cellulose nitrate, denitrating 1900.  
 —, —, filter cloths of woven, 1891.  
 —, denitration, 1898.  
 —, electric, cellulose nitrate for, 2645.  
 —, electric lamp, cellulose nitrate for, 2645.  
 —, electric light, cellulose nitrate for, 2594.  
*Filaments, hydrochloric acid, see Hydrochloric acid.*  
 —, incandescent, cellulose in zinc chlorate for, 105.  
 —, —, manufacture of, 101.  
 —, lamp, viscose for, 3676.  
 —, wood pulp for, 285.  
*Filaments, see also Mantels.*  
*Filicic anhydride, see Filicin.*  
 Filite, 2943, 2969.  
 Film, apparatus for, 3075.  
 —, cellulose acetate, 3048.  
 —, collodion, manufacture of, 1773.  
 —, cuprammonium cellulose, 78.  
 —, celluloid, reclaiming, 2750.  
 —, drying, vacuum, 2841.  
 —, photo, cellulose acetate for, 3056.  
 —, photo, cleaning, 2899.  
 —, photo, nitrated paper for, 533.  
 —, photo, viscose, 3074.  
 —, stripping, 2900.  
 —, sensitized, celluloid, 2748.  
 —, subtractive, 2881.  
 Film, supports, celluloid, 2748.  
 Film, thin, measuring, 1762.  
 —, varnishes, celluloid, 2903.  
 —, viscose, 3074.  
 —, waste, recovery of, 1889.  
 Filmodeam, 2795.  
 Filmogen, 1693, 2795.  
 Filter cloth, acid-proof, cellulose nitrate, 1890.  
 —, nitrated, 1639, 1890.  
 Filter paper, cellulose nitrate, 1892.  
 —, inflammable, cellulose nitrate, 1892.  
 —, Swedish, 518.  
 Filters, cellulose, 334, 1776.  
 —, cellulose nitrate, 1771, 2920.  
 —, collodion, 1771.  
 —, nitrated cloth for, 1890.  
 —, ray, 2875.  
 —, yellow, 2875.  
 Filtros, 754, 1444.  
 Finch method, (total acidity), 1507.  
 Fineness, determining in cellulose nitrate, 2305.  
 Fineness test, 1743.  
 Finishes, cuprammonium cellulose for, 78.  
 Finometer, 2159.  
 Fir, ash in, 244.  
 —, cellulose in, 244.  
 —, composition of, 254.  
 —, constants of, 244.  
 —, constitution of, 253.  
 —, lignin in, 244.  
 —, moisture in, 244.  
 —, pectic matter in, 244.  
 —, protein in, 244.  
 —, shoots, dry plate preservative, 2834.  
 Fireworks, cellulose nitrate for, 2983.  
 —, nitrated paper for, 1815.  
 —, parlor, cellulose nitrate for, 1887.  
 Firpené chlorhydrochloride, 2520.  
 Fish glue, artificial pearl with cellulose nitrate, and, 2588.  
 —, decreasing inflammability cellulose nitrate by, 1784, 2753, 2754.  
 Fishing line, celluloid coated, 2729.  
 Fish oil, paint remover containing, 2566.  
 Fish scales, artificial pearl with cellulose nitrate and, 2586.  
 Fismes silk, 2622.  
 Flames, colored, cellulose nitrate for, 1887.  
 Flash light composition, cellulose nitrate for, 2599.  
 Flash light powder, cellulose nitrate, 2904, 2983.

- masnignus, cellulose nitrate for**, 1887.  
 —, cellulose nitrate and magnesium, 1636.  
**Flavanthrene**, 142, 174.  
**Flavone**, 495.  
**Flax**, artificial filaments from 336.  
 —, ash in, 244, 260.  
 —, benzoylation of, 222.  
 —, cellulose in, 244.  
 —, constants of, 244.  
 —, density, 1756, 1760.  
 —, depolarization of, 1760.  
 —, dialysis, 1760.  
 —, dichroism of, 49.  
 —, furfural in, 250.  
 —, lignin in, 244, 250.  
 —, mercerizing, 234.  
 —, methylpentosan in, 250.  
 —, moisture in, 244.  
 —, nitrated, 1740, 1807.  
 —, —, density, 1756.  
 —, —, deoxidizing, 1893.  
 —, nitration of, 320, 557, 1623, 1872, 1874, 1878.  
 —, —, superficially, 1893.  
 —, optical activity, 1760.  
 —, oxidation of, 169.  
 —, pectin in, 250.  
 —, pectic matter in, 244.  
 —, pentosan in, 250.  
 —, protein in, 244, 250.  
 —, refraction, 1760.  
 —, retting of, 246.  
 —, wax in, 250.  
**Flechsigs' amyloid**, 148.  
**Fleece**, wood pulp for, 566.  
*Flesh split*, see *Skins*.  
**Flexodion**, 2795.  
**Flexoid**, 2890.  
**Flexoloid**, 3076.  
**Flint**, nitric acid manufactured with, 811.  
**Florida cotton**, constants of, 505.  
**Flour**, bleaching, nitrogen tetroxide for, 721.  
 —, cuprammonium absorbed by, 82.  
 —, starch in, 5.  
**Flowers**, celluloid, 2712.  
 —, artificial, cellulose nitrate for manufacture of, 2574.  
 —, natural, cellulose nitrate for preserving, 2599.  
**Flower stems**, waterproofing, cellulose nitrate for, 2599.  
**Flowers of sulfur**, 1033.  
**Fluid skin**, 2795.  
**Fluorescein**, 2871.  
*Fluorhydric acid*, see *Hydrofluoric acid, fuming*.  
**Fluorides**, action of, on lead, 1324.  
**Fluorine**, action of, on lead, 1206.  
**Fluosilicic acid**, 959.  
**Fördit**, 2971.  
**Försters smokeless powder**, 2971.  
**Fogs**, precipitating, 1393.  
*Foil, metal*, see *Metal foil*.  
**Foot arch supports**, celluloid, 2709, 2741.  
**Forcite**, 2971.  
**Forcite No 1**, 2971.  
**Fork handles**, celluloid, 2696.  
*Formal*, see *Methylal*.  
**Formaldehyde**, 3, 43, 961.  
**Formaldehyde**, action on starch, —  
 —, bleaching with, 619.  
 —, cellulose nitrate decomposition producing, 1715.  
 —, cellulose nitrate solvent, 2388.  
 —, detonating with sodium peroxide, 1668.  
 —, explosive of sodium peroxide and, 1699.  
 —, extracting resin from wood by, 289.  
 —, photosynthesis of, —.  
 —, preventing mould on collodion by, 1773.  
 —, purifying cellulose with, 28.  
**Formaldehyde-casein**, amber synthetic of, 2721.  
**Formaldehyde-cellulose**, 235.  
**Formaldehyde-shellac**, cellulose acetate solvent, 3020.  
**Formaldehyde starch**, 235, 420, 484.  
 —, manufacture, Blumer process, 421.  
 —, —, Classen process, 421.  
**Formalerythritic ether**, cellulose ester solvent, 2543.  
*Formalin*, see *Formaldehyde*.  
*Formamidated chloral*, see *Chloral-amide*.  
**Formamide**, 402.  
**Formanilid**, cellulose ester solvent, 2545.  
 —, nitrostarch stabilizer, 1828.  
**Formates**, manufacture of, 3001.  
 —, —, Hempel method, 3004.  
**Formic acid**, 2822.  
 —, action of, on starch, 476.  
 —, alcohol recovery by, 2558.  
 —, cellulose acetate solvent, 3031.  
 —, cellulose nitrate decomposition product, 1708.  
 —, denitrating nitrocellulose with, 23.  
 —, determination, 3005.  
 —, determining in presence of acetic

- acid, 3005.  
 Formic acid, dissolving cellulose formate by, 3017.  
 —, dissolving cellulose hydrate in, 3015.  
 —, dry plate preservative, 2828.  
 —, esterifying, catalytic, 3004.  
 —, ether recovery by, 2558.  
 —, formation by distillation paper, 44.  
 —, manufacture of, 3002, 3004.  
 —, —, sulfonic acids in, 3003.  
 —, modifying starch by, 428.  
 —, paint remover, 2563.  
 —, properties of, 3004.  
 —, solubility of nitrocellulose in, 23.  
*Formic aldehyde, see Formaldehyde.*  
 Formic esters, niter cake in manufacture of, 802.  
*Formic ether, see Ethyl formate.*  
*o-Formic ether, see Ethyl o-formate.*  
 Formin, 2391.  
 —, cellulose acetate solvent, 3033.  
*Formin, see also Hexamethylenetetramine*  
*Formins, see Glycerol formates.*  
*Formol, see Formaldehyde.*  
*Formonitrile, see Hydrocyanic acid.*  
 Formose, 424.  
*Formose, see also Formaldehyde.*  
 Formtoluid, nitrostarch stabilizer, 1828.  
 Formylamidophenyl amyl carbonate, cellulose ester solvent, 2546.  
 Formylamidophenyl ethyl carbonate, cellulose ester solvent, 2546.  
 Formylamidophenyl isobutyl carbonate, cellulose ester solvent, 2546.  
 Formylamidophenyl methyl carbonate, cellulose ester solvent, 2546.  
*Formylated albumen, see Albumen, formylated*  
*Formylated cellulose, see Cellulose formate.*  
*Formylated starch, see Starch formate.*  
*Formylation, see also Esterification.*  
 Formylcellulose, 111.  
*Formylcellulose, see also Cellulose formate.*  
*Formyl chloride, see Chloroform.*  
 Formyldiphenylamine, cellulose ester solvent, 2553.  
 Formyl hydrazine, 2915.  
*Formyl tribromide, see Bromoform.*  
 Fossano powder, 2925.  
 Fractures, compound, cellulose nitrate in treatment of, 2788.  
 Frakurit, 2971.  
 Frame coatings, celluloid for, 2698.  
 Frame tubes, celluloid, 2698.  
 Frames, celluloid, 2917.  
*Frangulic acid, see Frangulinic acid.*  
*Fraxinus ornus, 1863.*  
 French chalk, specification for, 2332.  
 French powders, action of ultra-violet rays on, 1763.  
 French powders, viscosity of, 2276.  
 French smokeless sporting powder, 2976.  
 Friable cottons, 1651.  
 Frischer evaporator, 1003.  
 Frostin balsam, 2795.  
 Frosting, celluloid lacquers for, 2579.  
 Fructosan, 7.  
 Fructose, 7.  
*Fructose, see also Levulose.*  
*d-Fructose-pentacetate, 183*  
*d-Fructose pentanitrile, 1848*  
*Δ-Fructose-tetracetate, 183.*  
*d-Fructose trinitrate, 1848.*  
 Fruits, pectocellulose in, 8.  
*Fruit sugar, see Levulose.*  
 Fuchsine, 164, 1582, 1661.  
 —, dyeing cellulose acetate by, 3055.  
 —, dyeing hydrocellulose with, 139.  
 Fucose, 7, 368.  
 Fuel, artificial, cellulose nitrate for, 1889, 1890.  
 —, composition, cellulose nitrate as, 1889.  
 —, nitrogen monoxide for, in motors, 695.  
 —, solid, cellulose nitrate for, 1890.  
 —, sulfite lye as, 283.  
 Fulgides, 2884.  
 Fulgor, A, 2971.  
 Fulgor B, 2971.  
 Fulgor C, 2971.  
 Fulgurites, 1801.  
*Fulmin same as Cellulose nitrate.*  
 Fulminam, 1817.  
 Fulminate, primer of cellulose nitrate and, 1501.  
 —, *see also Mercury fulminate.*  
 Fulminating composition, 1818.  
 Fulminating cotton, 1573, 1693.  
 Fulminating mannite, 1862.  
 Fulminating paper, 1815.  
 Fulminating sugar, 1849.  
 Fulminating wood, 1811.  
 Fulmin mannite, 1862.  
 Fulminose, 1599, 1817.  
 Fumelessite, 2971.  
 Fume mains, 761.  
*Fume tests, see Stability tests.*  
*Forming nitric acid, see Nitric acid, fuming.*

- Fuming oil of vitriol, see Oleum*  
**Fungi**, action of, on cellulose, 237.  
 —, action on, cellulose nitrate, 1802.  
 —, formation starch by, 404.  
 —, starch in, 406.  
 —, tissues of, constituents, 326  
**Funnels**, celluloid, 2917.  
**Furfural**, 10, 17, 20, 43, 57, 58, 122, 137, 152, 157, 162, 166, 168, 170, 251, 255, 263, 520, 580, 793, 2904  
 —, action of chlorine and, on ligno-cellulose, 262.  
 —, cellulose acetate solvent, 3029  
 —, cellulose nitrate solvent, 2394  
 —, determining, 365, 366, 544  
 —, gelatinizing cellulose nitrate by, 2965  
 —, oxycellulose yielding, 15.  
*Furfuraldehyde, see Furfural*  
**Furfural phloroglucide**, 366, 368  
**Furfural value**, determining, 365  
*Furfuranecarboxylic aldehyde, see Furfural*  
**Furfuroids**, 375.  
*Furfurol, see Furfural*  
**Furness filter press plate**, 1426  
**Furniture polish**, celluloid lacquers for, 2579.  
*Furol, see Furfural*  
**Furs**, treating cellulose nitrate for, 2610.  
**Fuse**, 2981  
 —, Bickford, 1595.  
 —, cellulose nitrate, 1582, 1624, 1635  
 —, cellulose nitrate and potassium silicate for, 1595.  
 —, nitrated flax for, 1878  
 —, nitrated hemp for, 1878  
 —, nitroerythrite for, 1859.  
 —, transporting, 1929  
 —, xyloidine, 1624.  
**Fuse strips**, cellulose nitrate for, 2574.  
**Fusel oil**, 205, 2382, 2469.  
 —, cellulose acetate non-solvent, 3039  
 —, cellulose nitrate cement containing, 2577  
 —, cellulose nitrate dehydration with, 2140.  
*Fusel oil, refined, see also Amyl alcohol*  
 —, paint remover containing, 2652  
 —, synthetic, 2482.  
**Gaillard tower**, 1372.  
 —, acid circulation, 1379  
 —, constructional details, 1375, 1376.  
 —, dome of, 1376.  
 —, fans, 1378.  
 —, furnace, 1379.  
**Gaillard tower, Gretna installation**, 1376.  
**Gaillard tower**, leakages, 1378  
 —, main tower, 1376  
 —, off-takes, 1377  
 —, recuperator, 1377  
 —, scrubber, 1378  
**Galactonic acid lactone-chlorhydric tetracetate**, 183  
**Galactonic acid nitrile pentacetate**, 183.  
**Galactose**, 7, 260, 281, 352, 398, 478  
*Galactose octacetate, see Octacetyl galactose*  
 *$\beta$  Galactose pentacetate*, 183  
*Galactose pentamitate*, 1846  
*Galena, see also Lead sulfide*  
 —, lead sulfate from, 1081.  
 —, roasting, 1081  
 —, melting, 1081  
 —, sulfur dioxide from, 1081.  
*Gallanilide, see Gallanol*  
**Gallie acid**, 204, 2821, 2822, 2858.  
 —, absorption cellulose by, 63  
 —, dry plate preservative, 2832  
 —, increasing density collodion image by, 2816  
 —, intensifying by, 2823  
 —, iodizer addition to, 2812.  
 —, preserving collodion emulsion by, 2846.  
*Gallie acid anhyd, see Gallanol*  
**Gallium cotton**, constants of, 505  
*Gallisin, see also Methyl gallate*  
 —, 479  
*Gallotannic acid, see also Tannin*  
**Gamboge**, 501  
**Gambon rubber**, 1849  
**Games**, celluloid in manufacture of, 2728.  
*Gamma compounds, see  $\gamma$ -compounds*  
**Garnett knot breaker**, 627  
**Gas**, coal, sulfur from, 1030  
**Gas powder**, 2971.  
**Gas bags**, viscose for, 3080  
**Gas**, sulfur from, 1036  
 —, velocity, measurement, 1240  
**Gas engine**, nitrocellulose for actuating, 320.  
**Gases**, absorption of, by cellulose nitrate, 1698  
 —, absorption of, by cotton, 529  
 —, carbon bisulfide in, alkali cellulose for removal of, 3083  
 —, distilling from carbohydrates, 41  
 —, exit, acidity in, estimating, 1337  
 —, flue, acidity in, estimating, 1337  
 —, ionizing, 1392  
 —, measuring, 1240  
 —, smelter, sulfuric acid from, 1294  
 —, sulfur in, obtaining, 1032.



- Gases, sulfur dioxide containing, purifying, 1086. *q*  
 —, sulfur dioxide in, estimating, 1337.  
 —, sulfur trioxide in, estimating, 1337.  
*c* Gas mantles, *see also* Mantles, gas, and — incandescent.  
 —, cuprammonium cellulose, 78.  
 —, hydrocellulose for, 663.  
 Gas masks, celluloid for, 2744.  
 Gas volumeter, determination of nitrogen by, 968.  
*c* Gas volumes, reduction of (table), 1520.  
 Gaultheria oil, *see also* Methyl salicylate.  
 Gay-Lussac tower, 1008, 1262.  
 —, capacity, 1263.  
 —, foundations, 1263.  
 —, packing, 1263.  
 Gear cases, moulding, celluloid for, 2698.  
 Geese, digestion of cellulose by, 345.  
 Gel, formation of, 35.  
 Gelan, 7.  
 Gelactan, 7.  
 Gelatin, animal filaments of, 2640.  
 —, artificial pearl with cellulose nitrate, and, 2588.  
 —, blasting, *see* Blasting gelatin  
 —, celluloid lacquer containing, 2578.  
 —, celluloid substitute, 2750, 2764.  
 —, clarifying by nitrated resin, 1870.  
 —, collodion membranes treated with, 1775.  
 —, co-nitration of cellulose with, 1645.  
 —, dehydration by steam, 35.  
 —, dry plate preservative, 2829.  
 —, dyed, 2883.  
 —, explosive, 2955.  
*Gelatin explosive, see also* Explosive gelatin.  
 —, filaments of, 2646.  
 —, iodizer addition to, 2813.  
 —, membrane, 1770.  
 —, nitrating, 1645.  
 —, nitric acid compounds of, 1644.  
 —, paint remover containing, 2568.  
 —, reducing inflammability of celluloid by, 2753.  
 —, reducing inflammability of cellulose nitrate by, 1790.  
 —, softening mercerized cotton by, 106.  
 —, substitute for, 105.  
 —, vegetable, 2928.  
 Gelatinates, 1775.  
 Gelatin dynamite, 2970.  
 Gelatin dynamite, analyses of, 1636.  
 Gelatinized fiber, *see also* Vulcanized fiber.  
 —, manufacture of, 105.  
 Gelatine de guerre, 2971.  
 Gelatin forcite, 2971.  
 Gelatinizing accelerators, 2535.  
 Gelatins, 2381.  
 Gelatose, 936.  
 Gelbite, 2971.  
 Gelignite, 284, 2955, 2971, 2972.  
 —, mercuric chloride in, 2302.  
 Gelose, 7, 2976.  
 Geloxib, 2971.  
 Gem inlaying, celluloid for, 2712.  
 Gentiobiose, 194.  
 Gentiobiose, 193.  
 Georgia cotton, length of fibers, 509.  
 German powder, 2930.  
 German stability test, 2347.  
 Germany, sulfuric acid industry in, 1010.  
 Gilchrist concentrator, 1396.  
 Gilding, cellulose nitrate lacquer for, 2585.  
 Gill kiln, 1022.  
 Gin, saw tooth, 570.  
 Ginger wine, dry plate preservative, 2833.  
 Glacial acetic acid, *see* Acetic acid, glacial.  
 Glanzstoff, 86.  
 —, copper value of, 383, 547.  
 Glass, action of sulfuric acid on, 1322.  
 —, catalytic action of, 1102.  
 —, concentrating sulfuric acid in, 1360.  
 —, manufacture of, barium sulfate for, 1129.  
 —, —, calcium sulfate for, 1129.  
 —, —, niter cake for, 807.  
 —, niter cake in manufacture of, 800.  
 Glass, non-shattering, celluloid for, 2684.  
 —, —, cellulose acetate for, 3052.  
 —, obscuring by moisture, cellulose acetate for preventing, 3052.  
 —, painting on, cellulose nitrate lacquers for, 2583.  
 —, positives on, 2867.  
 —, splinterless, celluloid for, 2684.  
 —, —, cellulose acetate for, 3052.  
 —, stained celluloid sheets for, 2683.  
 —, strengthened, celluloid for, 2684.  
 —, substitute for, 3075.  
 —, triplex, celluloid for, 2684.  
 Glauberte, 805

- Gumabic, succinic acid* from, 1297.  
*Gliadin*, cellulose ester solvent, 2550.  
*Globulin*, cellulose ester solvent, 2550.  
*Globulins*, decolorizing starch iodide by, 411.  
*Glove eyelets*, celluloid for, 2704.  
*Glove fastener*, celluloid, 2711.  
*Gruyer tower*, 1008, 1204, 1276.  
 —, dimensions of, 1281.  
 —, operating, 1282.  
 —, packing for, 1279.  
*Glucic acid*, developer of, 2822.  
*isoGlucosic acid*, 19, 20.  
*Glucose*, 7.  
*Glucodine*, 1849.  
*Glucoseheptose hexanitrate*, 1847.  
*Glucomanelic acid*, *see Amygdalic acid*.  
*Gluconic acid ethyl ester-pentacetate*, 183.  
*Gluconic acid lactone-tetracetate*, 183.  
*Glucosamine*, 7.  
*l-Glucosan*, 24, 407.  
 —, distillation of cellulose to, 15  
*l-Glucosan triacetate*, 42.  
*l-Glucosan tribenzoate*, 42.  
*Glucosan trinitrate*, 1848.  
*Glucose*, *see also Dextrose*.  
 —, 7, 198.  
 —, co-nitration of glycerol with, 1854  
 —, co-nitration glycols with, 1855.  
 —, converting cellulose to, 198, 199  
 —, dyeing with indigo and, 282.  
*Glucose, grape sugar*, *see also Dextrose*  
 —, manufacture of, 947.  
 —, nitrating, 2803, 2840.  
 —, paint remover containing, 2566.  
 —, preparing, 95.  
 —, rotatory power of, 51.  
 —, separation by collodion membrane, 1775.  
 —, starch and acids forming, 476  
*Glucoseamin - triacetate-bromhydrin*, 184.  
*Glucose diacetate*, 183, 185.  
 —, cellulose ester solvent, 2549.  
*Glucose dibutyrate*, cellulose ester solvent, 2549.  
*Glucose dinitrate*, 1834.  
*Glucose disulfate*, cellulose ester solvent, 2549.  
*Glucose ditartrate*, cellulose ester solvent, 2549.  
*Glucose pentacetate*, *see also Pent-acetylglucose*.  
 —, cellulose ester solvent, 2549.  
*α-Glucosepentacetate*, 182.  
*β-Glucose pentacetate*, 185.  
*Glucose pentanitrate*, 1846, 1854.  
*Glucose phenyldesoxine*, 236.  
*Glucoses*, 6.  
*Glucose tetracetate*, 183  
*Glucose tetratartrate*, cellulose ester solvent, 2549  
*Glucose triacetate*, 183, 185.  
 —, cellulose ester solvent, 2549  
*Glucosic (iso) acid*, *see also Isoglucosic acid*.  
*Glucosic acid*, 19.  
*Glucosidase*, 194.  
*Glue, viscose and*, 1082.  
*Glukodine*, 1852.  
*Glutamic acid*, *see Glutamic acid*  
*Gluten*, 462.  
 —, plastic, oxycellulose and, 177  
*Glutin*, 337.  
*Glutols*, 421.  
*Glyceraldehyde*, 1716.  
*Glyceride of boric acid*, *see Boroglycerol*.  
*Glycerine*, *see Glycerol*.  
*Glycerinic acid*, *see Acid, glyceric*.  
*Glycerite of boric acid*, *see Boroglycerin*.  
*Glycerol*, 145, 398, 2820  
 —, action of, on starch, 441.  
 —, acid for nitration of, 1428  
 —, alcohol recovery by, 2558.  
 —, cellulose acetate solvent, 3026.  
 —, chlorinated, paint remover containing, 2566.  
 —, condensate of phthalic acid and, 1862.  
 —, co nitration glucose and, 1854.  
 —, co-nitration sugar and, 1851.  
 —, dissolving copper in ammonia with, 43  
 —, dissolving starch by, 430  
 —, dry plate preservative, 2828  
 —, ether oxide of, 3034.  
 —, ether recovery by, 2558.  
 —, iodizer addition, 2812  
 —, masking diphenylamine test by, 2360  
 —, modifying cellulose by heating with, 1725.  
 —, nitrating, spent acid from, recovery, 1456.  
 —, —, waste acid from, 1425.  
 —, nitration cellulose and, 2254.  
 —, nitration sugar and, 2255  
 —, nitration, waste acid from, denitration, 1443.  
 —, nitrogen from ammonium nitrite and, 691.  
 —, separation by collodion mem-

- brane, 1775.  
 Glycerol, softening cellulose nitrate by, 2791.  
 —, softening vulcanized fiber by, 104, 105.  
 —, treating cotton with, 567.  
 Glycerol dichlorhydrin, *see* *α*-Dichlorhydrin.  
 Glycerol esters, amyl acetate substitute, 2582.  
 Glycerol malate, cellulose ester solvent, 2536.  
 Glyceropyroxylin, 2254.  
 Glycerose, 6.  
 Glyceryl acetate, 2393.  
 Glyceryl acetylsalicylate, cellulose ester solvent, 2537.  
 Glyceryl benzoate, 2392.  
 —, cellulose nitrate solvent, 2384.  
 —, cellulose ester solvent, 2543.  
 Glyceryl borate, *see* *Boroglycerol*.  
 Glyceryl butyrate, 2392.  
 Glyceryl cinnamate, 2393.  
 Glyceryl diacetate, *see* *Diacetin*.  
 Glyceryldiacresyl, 2393.  
 Glyceryl  $\alpha,\alpha'$ -dinitrate, 1717.  
 Glyceryl formate, 2391.  
 —, cellulose acetate solvent, 3033.  
 Glyceryl monacetate, *see* *Monacetin (a)*.  
 Glyceryl methyl ether dinitrate, 2394.  
 Glyceryl nitrate, *see* *Nitroglycerol*.  
 Glyceryl orthosilicate, reducing inflammability cellulose nitrate by, 1788.  
 Glyceryl phthalate, 2393.  
 Glyceryl oxalate, cellulose acetate solvent, 3033.  
 Glyceryl phthalate, cellulose acetate solvent, 3034.  
 —, cellulose ester solvent, 2538, 2543.  
 Glyceryl phthalonate, cellulose acetate solvent, 3034.  
 Glyceryl salicylate, 2390.  
 —, cellulose acetate solvent, 3034.  
 Glyceryl silicate, reducing inflammability cellulose nitrate by, 1788.  
 Glyceryl succinate, cellulose ester solvent, 2543.  
 Glyceryl triacetate, *see also* *Triacetin*.  
 Glyceryl triacetate, 2391.  
 Glyceryl tribrom-hydrine, *see* *Tribrom-hydrine*.  
 Glyceryltribromide, *see* *Allyl tribromide*.  
 Glyceryl *p*-toluenesulfethylanilid, cellulose ester solvent, 2546.  
 Glyceryl *p*-toluenesulfonate, cellulose ester solvent, 2546.  
 Glyceryl trichlor-hydrine, *see* *Trichlor-hydrine*.  
 Glyceryl trimformate, *see* *Glyceryl formate*.  
 Glyceryl trinitrate, *see* *Nitro-glycerol*.  
 Glycide phenolate, 2392.  
 Glycin, *see also* *Glycocoll*.  
 Glycin corinth, 2871.  
 Glycin red, 2871, 2872.  
 Glycocoll, *see* *Glycin*.  
 Glycocoll, 2830.  
 —, developer, 2820.  
 Glycodrupose, 10, 266.  
 Glycogen, 7, 400, 436, 468.  
 —, hydrolysis of, 421.  
 Glycogen nitrate, 1855.  
 Glycogen triacetate, 185.  
 Glycol, *see also* *Ethylene glycol*.  
 —, 395.  
 Glycolaldehyde, 6.  
 Glycol benzoate, cellulose ester solvent, 2537.  
 Glycol benzoate, cellulose acetate solvent, 3034.  
 Glycol *o*-chlorbenzoate, cellulose ester solvent, 2537.  
 Glycol chlorhydrin, *see* *Ethylene chlorhydrin*.  
 Glycol cinnamate, cellulose acetate solvent, 3035.  
 Glycol cyanhydrin, *see* *Ethylene cyanhydrin*.  
 Glycol dibromide, *see* *Ethylene bromide*.  
 Glycol dichloride, *see* *Ethylene chloride*.  
 Glycol diiodide, *see* *Ethylene iodide*.  
 Glycol dinitrate, *see* *Ethylene nitrate*.  
 Glycol dinitrite, *see* *Ethylene nitrite*.  
 Glycol esters, amyl acetate substitute, 2582.  
 Glycol hydrocinnamate, cellulose ester solvent, 2537.  
 Glycol hydrotropate cellulose ester solvent, 2537.  
 Glycolignose, 10, 266.  
 Glycollic acid, 120.  
 —, cellulose nitrate decomposition of, 1665.  
 —, formation from cellulose, 45.  
 Glycol monoacetate, *see* *Ethylene glycol monoacetate*.  
 Glycol nitrate, saponification of, 1700.  
 Glycol *p*-nitrobenzoate, cellulose ester solvent, 2537.  
 Glycolose, 6.  
 Glycol phenylacetate, cellulose ester solvent, 2537.  
 Glycol phenyldiethylacetate, cellulose ester solvent, 2537.

- Glycol phenyldiethylcarbinacetate, cellulose ester solvent, 2537.  
 Glycol phenylethylacetate, cellulose ester solvent, 2537.  
*Glycoluril*, see *Acetylene urea*.  
 Glycol salicylate, cellulose ester solvent, 2537.  
 Glycols, co-nitration of, 1855.  
 Glycol *o*-toluene, cellulose ester solvent, 2537.  
 Glycose, 7.  
 *$\beta$ -Glycose* pentacetate, 184.  
 Glycoses, 6.  
 Glycuronic acid lactone-bromhydrindiacetate, 184.  
*Glycyl alcohol*, see *Glycerol*.  
 Glycyrrhizin, iodizer addition to, 2813.  
*Glyoxyldiureid*, see *Allantoin*.  
*Glyoxylic acid*, see *Glyoxalic acid*.  
 Glyoxyline, 2971.  
*Glyssal*, see *Glycerol amino salicylate*.  
 Go-carts, celluloid, 2729.  
 Gold, catalytic action of, 1158.  
 —, action sulfuric acid on, 1319.  
 —, incrusting on celluloid, 2690.  
 Goldbeaters skin, permeability of, 1770.  
 Gold bromide, iodizer addition, 2812.  
 Gold chloride, 2856.  
 —, iodizer addition, 2812.  
 Gold (ic) chloride, coloring celluloid by, 1896.  
 —, dissolving cellulose by, 109.  
 Gold chloride, imitation coral of, 2720.  
 Gold (ic) chloride, intensifying by, 2824.  
 Gold chloride, preserving collodion emulsions by, 2847.  
 Goldfish, eyeball, imitation pearl from, 2589.  
 —, scales of, imitation pearl from, 2589.  
 Gold leaf, imitation, 2586.  
 Gold powders, 2855.  
 Gold toning, collodio-chloride, 2856.  
 Golf ball, celluloid, 2724.  
 —, cleaners for, celluloid, 2727.  
 —, coating, cellulose nitrate for, 2593.  
 —, lacquering, celluloid for, 2728.  
 Golf club, celluloid, 2727.  
 Goodwin film, 2889.  
 Gorse, cellulose from, 328.  
 —, —, nitrating, 1873.  
 Gossypetin, 495, 532.  
 Gossypitone, 495.  
 Gossypitrin, 495, 532.  
 Gossypitrone, 496.  
*Gossypium acuminatum*, 507.  
*Gossypium arboreum*, 490, 495, 503, 507.  
*Gossypium barbadense*, 485, 488, 490, 493, 495, 507.  
*Gossypium brasiliense*, 494, 495.  
*Gossypium chinense*, 494.  
*Gossypium conglomeratum*, 500, 507.  
*Gossypium herbaceum*, 485, 496, 493, 507, 531.  
*Gossypium hirsutum*, 488, 490, 493, 495, 501, 531, 548.  
*Gossypium indicum*, 493.  
*Gossypium mexicanum*, 493.  
*Gossypium neglectum*, 494, 495.  
*Gossypium obtusifolium*, 494.  
*Gossypium peruvianum*, 494.  
*Gossypium religiosum*, 494.  
*Gossypium samarcense*, 494.  
*Gossypium fluitense*, 494.  
*Gossypium vitifolium*, 493, 507.  
*Gossypium weightmanii*, 494.  
 Gossypol, 501.  
 Gossypose, see *Raffinose*.  
*Grain alcohol*, see *Alcohol, ethyl*.  
 Graming, celluloid lacquers for, 2579.  
*Grain split*, see *Skins*.  
 Grakult, 1637.  
*Gramophone*, see *Phonograph*.  
 Grand fir, composition of, 261.  
 Granulite, 2971.  
 Granulose, 422.  
*Grape sugar*, see also *Glucose*.  
 Grape sugar, 74.  
 —, hydrolyzing, 94.  
 Grape vines, sulfur used for, 1036.  
 Graphic arts, celluloid in, 2746.  
 Graphite, 2970, 2971, 2974, 2975.  
 —, determination, 2369.  
 —, lubricant of celluloid and, 2578.  
 —, specifications for, 2259.  
 —, specifications, French, 2268.  
*Graphophone*, see *Phonograph*.  
 Grease, extraction, niter cake for, 791.  
 Grease remover, acetone as, 2400.  
 "Green soda," 742.  
 Greener's powder, 2971.  
 Green wood spirits, 2409.  
 Grenades, cellulose nitrate for charging, 2164.  
 Grenite, composition of, 1837, 1839, 1841.  
 Grennlite, 2971.  
 Grenz dextrin, 407.  
 Griesheim tower system, 1224.  
 Grillo plant, contact mass, preparation of, 1183.

- Grillo process*, see *Sulfuric acid*,  
*manufacture of*.  
 Grisoutite, 2971.  
 Grit traps, 2103.  
 Guaiac, cellulose nitrate solvent,  
 2385.  
 —, dry plate preservative, 2823,  
 2829.  
 —, preserving collodion emulsions by,  
 2847.  
 Guaiacol, 2385.  
 —, absorption of, by cellulose, 63.  
 —, cellulose acetate solvent, 3029.  
 —, reaction *fignoce* with, 262,  
 263.  
*Guaiacol benzoate*, see *Benzoylguaiacol*.  
*Guaiacol cinnamale*, see *Styracin*.  
*Guaiacol ether of carbonic acid*, see  
*Guaiacol carbonate*.  
 Guaiacol phenyl ether, cellulose ester  
 solvent, 2543.  
*Guaiacol salicylate*, see *Guaiacolsalol*.  
 Guanidine, cellulose acetate solvent,  
 3036.  
 —, cellulose ester solvent, 2552.  
 —, manufacture of, 933.  
 Guanidine, nitrostarch stabilizer,  
 1828.  
 —, treating viscose with, 3074.  
 Guanidine nitrate, cellulose ester  
 solvent, 2552.  
 Guanidine picrate, 2965.  
*Guaranine*, see *Caffeine*.  
 Guignet's cellulose, 35, 147.  
 Guldberg and Waage's law, 432.  
 Gum, Australian grass, nitrating,  
 1869.  
 —, gold leaf lacquer with, 2588.  
 —, substitute for, sulfite lye as, 283.  
 —, synthetic, preparation of, 9C.  
 —, transforming starch into, 403.  
*Gum arabic*, see *Acacia*, also *Arabic*,  
*gum*.  
 —, explosive containing, 1841.  
*Gum benzoin*, see *Benzoin*.  
*Gummic acid*, see *Arabic acid*.  
 Gum-para, amyl acetate substitute,  
 2583.  
 —, celluloid and, 2579.  
 Gums, nitrating, 1849.  
*Gum tragacanth*, see *Tragacanth*.  
 Gun, D. S., 2933.  
 —, Haskell, 2932.  
 —, Hotchkiss, 2929.  
 —, Sims-Pudley, 2932.  
 Guncotton, 1574.  
 —, absorption of, moisture by, 1753.  
 —, alkalinized, 1615.  
 —, ballistics of, 1793.  
 Guncotton, ballistics of moist, 1794.  
 —, bichromated, 1911.  
 —, blasting experiments with, 1793.  
 —, chlorated, 1911.  
 —, colloiding, 1632.  
 —, combustion, heat units in, 1794.  
 —, commercial, composition of, 1646.  
 —, compressed, see *Cellulose nitrate*,  
*compressed*.  
 —, —, 1621.  
 —, compression of, 1633.  
 —, cotton waste for, inspection of,  
 598.  
 —, decomposition of, 1627, 1796.  
 —, definition of, 1690.  
 —, deflagrating, pressures in, 1626.  
 —, density, 1757.  
 —, detonation, cumulative, 1639.  
 —, —, gases in, 1800.  
 —, —, velocity of, 1795.  
 —, discovery of, 1574.  
 —, drying, see *Cellulose nitrate*, *drying*.  
 —, ether-soluble, 1625.  
 —, exploding, force exerted in, 1623.  
 —, —, light spectrum of, 1758.  
 —, explosion, gases in, analysis, 1799.  
 —, —, heat units in, 1802.  
 —, explosion under pressure, 1798.  
 —, heat of decomposition, 1628.  
 —, heat of formation of, 1627, 1628,  
 1794.  
 —, history of, 1575.  
 —, hygroscopicity, diminishing, 1754.  
 —, Lenk's improved, 1596, 1597.  
 —, loose, specific gravity of, 1757.  
 —, moist, ballistics of, 1794.  
 —, moisture in, 1753.  
 —, moulding, 1635.  
 —, nitrated, 1911, 2971, 2973.  
 —, optical properties of, 1757.  
 —, preserving, 1787.  
 —, polariscopic appearance of, 1759.  
 —, products of combustion of, 1794.  
 —, pulping, effect of, 1657.  
 —, silicated, 1615.  
 —, solubility, 1690.  
 —, specific gravity, 1757.  
 —, speed transmission explosion  
 waves, 1794.  
 —, steaming, 2079.  
 —, stoving, 1766.  
 —, transportation, 1927.  
 —, Ulex Europeans for, 328.  
 —, velocity of detonation, 1795.  
 —, waterproofing, 1754, 1887.  
 —, washing, effect of, 1657.  
 —, wet, exploding, 1629.  
*Guncotton*, see also *Cellulose nitrate*.  
 Guncotton engine, 2076.

- Guncotton conveyor, 2060.  
 Guncotton plant, construction, 1912.  
 —, layout, 1912.  
 Guncotton primers, *see* Cellulose nitrate primers.  
 Guncotton slabs, *see* Cellulose nitrate, slabs.  
 Gun matches, 1589.  
 Gunpowder, combining cellulose nitrate with, 1619.  
 —, patents, 1810.  
 Gunpowder, smokeless, Hengst improved, 1637.  
 —, sulfur in, estimating, 1042.  
 —, white, 1592.  
 Gut strings, impregnation with cellulose nitrate, 2609.  
 Guttapercha, gold leaf applying with, 2588.  
 —, substitute, cellulose acetate for, 3049.  
 Guttman denitrating system, 1462.  
 Guttman denitrating stones, 1463.  
 Guttman-Sparre test, 2337.  
 Guttman stability test for cellulose nitrate, 2335.  
 Gutzeit test, 1127, 1335.  
*Gymnocladus canadensis*, 1569.  
*Gynoval*, *see* Isobornyl isovalerate.  
*Gypsum*, *see* also Calcium sulfate.  
 —, calcium sulfide from, 1029.  
 —, manufacture of sulfur from, 1027.  
 —, sulfur from, 1022.  
 —, sulfur dioxide from, 1084.  
 —, sulfuric acid from, 1296, 1300.  
 Hacker-Gilchrist tower, 1221.  
 Hadromal, 265.  
 Hair, artificial, cellulose nitrate, 1889.  
 —, ornaments for, 2714.  
 Hair pin, celluloid, 2714.  
 Halation, 2902.  
 Haloxylin, 1617, 1693.  
 Hammond and Spence furnace, 1079.  
*Hand decorated leather*, *see* Leather, hand decorated.  
 Handle bars, celluloid, 2698.  
 Handles, celluloid, 2696.  
 Handles, instrument, celluloid, 2742.  
 Handles, velocipede, celluloid, 2698.  
 Handkerchief, celluloid, 2711.  
 Hanover's porous metals, catalyst, 918.  
 Harcourt pentane lamp, 2494.  
 Hart condensers, 748, 758.  
 Hastings spirits, 2409.  
 Haskell gun, 2932.  
 Hats, stiffening, celluloid for, 2708, 2703.  
 Hats, sweat bands for, celluloid, 2702.  
 Haylite, 2976.  
 Hearing appliance, celluloid, 2703, 2741.  
 Heat test, 1613.  
 Heat test, Abel, 2331.  
 —, British method, 2327.  
 —, determining, naphthylamine for, 2337.  
 —, —, Holland practice, 2338.  
 —, diphenylamine for, 2335.  
 —, Hoitsema, 2336.  
 —, masking, 2334.  
 —, paper for, preparing, 2329.  
 —, *m*-phenylene diamine for, 2333.  
 —, potassium iodide in, purifying, 2333.  
 —, Spica method, 2337.  
 —, starch in, purifying, 2333.  
 —, starch-iodide paper, preparing, 2333.  
 —, standard paper for, preparing, 2333.  
 —, sulfanilic acid, for, 2335.  
 —, Sy modification, 2339.  
 —, U. S. Ordnance, 2326.  
 —, various, 2365.  
 —, weak points in, 2327.  
 —, *see* Stability tests.  
*Heavy acetone oil*, *see* Acetone oil, heavy.  
*Heavy spar*, *see* Barium sulfate.  
*Hedecetyl alcohol*, *see* Cetyl alcohol.  
*Hedychium coronarium*, nitration of, 328, 1880.  
 Heels, celluloid, 2709.  
 Hefner lamp, 2494.  
 —, standardizing, 2494.  
 Hegeler furnace, 1079.  
 Hegeler kilns, 1009.  
 Helenin, iodizer addition to, 2613.  
 Helianthin, 482.  
 Heliochromy, interference, 2883.  
*Heliotropin*, *see* Pisperonal.  
 Helmet, celluloid, 2702.  
 Hematite, 812.  
 Hematoxylin, coloring celluloid by, 1896.  
 —, developer of, 2822.  
 Hematoxylin, 2722.  
 Hemicellulose, 7, 11, 171, 220, 237, 259, 350.  
 —, analysis of, 352.  
 —, conversion into mucilage, 49.  
 —, manufacture from cotton-seed hulls, 271.  
 —, mucilage from, 602.  
 —, nitrated, detonator containing,

- Hemicellulose, pitting, 1876.  
 Hemihexosans, 352.  
 Hemipentosans, 352.  
 Hemlock, composition of, 261.  
 Hemp, artificial, cellulose nitrate for, 2644.  
   —, artificial filaments from, 336.  
   —, ash in, 244, 250.  
   —, cellulose from, 328.  
   —, cellulose in, 244.  
   —, chlorination of, 363.  
   —, constants of, 244.  
   —, dichroism of, 49.  
   —, distillation of, 55.  
   —, furfural in, 250.  
   —, hygroscopicity of, 513.  
   —, lignin in, 244, 250.  
   —, methylpentosan in, 250.  
   —, moisture in, 244.  
   —, nitric acid compounds of, 1644, 1807, 1808.  
   —, nitrated, hygroscopicity of, 1807.  
   —, nitrating, 557, 1874, 1877, 1878.  
   —, oxidation of, 169.  
   —, oxycellulose from, 169.  
   —, pectic matter in, 244, 250.  
   —, pentosan in, 250.  
   —, protein in, 244, 250.  
   —, removal lignin from, 363.  
   —, Sönn, nitrating, 1881.  
   —, substitute, viscose for, 3078.  
   —, wax in, 250.  
 Hendeka-hydronitrocellulose, 2971.  
 Henrite, 2972.  
 $\beta$ -Heptacetobrommaltose, 182.  
 Hendecatoic acid, *see* Undecylic acid.  
 Hengstite, 1804.  
 Henry's law, 1404.  
 Hepta(say)acetylgluc. *see also* Acetylglucose (hepta).  
 Hepta-acetylbenzoylcellobiose, 187.  
 Heptacetobronlactose, 185.  
 Heptacetochlormaltose, 182.  
 Heptaacetylcellobiose, 182.  
 Heptadecic acid, *see* Margaric acid.  
 Heptahydronitrocellulose, 2971.  
 Heptaldehyde, *see* Oenanthal.  
 Heptanitocellulose, 1661.  
 Heptanal, *see* Oenanthal.  
 Heptanitrocellulose, 1650.  
 Heptene, *see* Heptylene.  
 Heptic acid, *see* Oenanthic acid.  
 Heptic aldehyde, *see* Oenanthal.  
 Heptyl acid, *see* Oenanthylic acid.  
 Heptyl aldehyde, *see* Oenanthal.  
 Heptyl ether, *see* Ethyl heptylate.  
 Heptyl formate, 2388.  
 Heptyl ketone, paint remover containing, 2566.  
 Heptylmethyl ketone, 2397.  
 Heptyl tartrate, rotation-dispersion of, 3036.  
 Herzberg reagent, 379.  
 Hesperidin sugar trinitrate, 1846.  
 Hevenoid, 2670.  
 Hexa(say)nitromannite, *see also* Nitromannite (hexa).  
 Hexacetyl mannit, *see* Mannit hexacetate.  
 Hexachlorethane, 3046, 3058.  
 Hexachlorethane, *see also* Carbon trichloride.  
 Hexadecyl (normal primary) alcohol, *see* Cetyl alcohol.  
 Hexaethyl disilicate, reducing inflammability cellulose nitrate by, 1787.  
 Hexaethyl-*p*-rosaniline, 2874.  
 Hexahydrobenzene, paint remover containing, 2567.  
 Hexahydro-*o*-cresol, cellulose ester solvent, 2548.  
 Hexahydrophenol, *see* Cyclo-hexanol.  
 Hexahydropyridine, *see* Piperidine.  
 Hexahydrothymol, *see* Menthol.  
 Hexamethyleneamine, *see* Hexamethylenetetramine.  
 Hexamethylenetetramine, 980.  
 Hexamethylenetetramine bromethylate, *see* Bromalin.  
 Hexamethylenetetramine nitrate, 980.  
 Hexanaphthene, *see* Cyclo-hexane.  
 Hexanitrin, 1862.  
 Hexanitrocellulose, 1650.  
 Hexanitroethane, 2964, 2966.  
 Hexanitromannite, 1868, 2971.  
 Hexanitrostarch, 1824.  
 Hexa-oxy-anthraquinone, *see* Ruffigallic acid.  
 Hexoic acid, *see* Caproic acid.  
 Hexoic acid nitrile, *see* Amyl cyanide.  
*b*-Hexone alcohol, *see* Dulcitol.  
 $\alpha$ -Hexone hexanitrile, 1862.  
 Hexose, 7.  
 Hexose nitrates, 1844.  
 Hexose, precipitating cuprammonium cellulose with, 76, 77.  
 Hexosans, 259, 350.  
 Hexyl formate, 2388.  
 Hexyleneglycol, *see* Pinacone.  
 Hexylic acid, *see* Caproic acid.  
 Hibiscus abelmoschus, 246.  
 Hibiscus cannabinus, 246.  
 Hibiscus cannabinus, nitrating, 1879.  
 Hibiscus esculentus 246.

- Hibiscus guineensis*, 246.  
*Hibiscus lunariifolius*, 246.  
*Hibiscus quinquelobus*, 246.  
*Hibiscus rostellatus*, 246.  
*Hibiscus sabbdariffa*, 246.  
*Hibiscus squamosus*, 246.  
*Hibiscus tiliaceous*, 246.  
 Hide-ite, 2603.  
 Hide powder, 284.  
 Hides, coating with cellulose nitrate, 2618.  
 —, softening, sulfur dioxide for, 1099.  
 High boilers, 2535.  
 High explosives, definition of, 1930.  
 Hingunghat cotton, constants of, 506.  
 —, diameter of fibers, 508.  
 —, length of fibers, 509.  
 Histocotton, 2780.  
 Histoloid, 1693, 2669, 2780.  
 Hockey balls, celluloid, 2728.  
 Hockey stick, celluloid, 2627.  
 Hoitsema stability test, 2336.  
 Hollander, 2087.  
 —, Hoyt, 2092.  
 Homocel, 2874.  
*Homopyrocatecholmonomethyl ether*, see *Cresol*.  
*Homosalicylic acid*, see *Cresotic acid*.  
*Homotoluylic acid*, see *Hydroxynamic acid*.  
*Honckenya ficifolia*, 246.  
 Honey, 2817, 2820.  
 —, bichromated, 2906.  
 —, dry plate preservative, 2828.  
 Hop runners, cellulose from, 328.  
 —, nitration of, 329, 1880.  
 Horn, artificial, celluloid for, 2719.  
 —, cellulith as substitute for, 338.  
 —, imitation, cellulith for, 338.  
 Hornite, 2972.  
 Horn, nitrating, 1881.  
 Horn powder, 2972.  
 Hornbeam, composition of, 254.  
 Horsechestnuts, acetone from, 2397.  
 —, *n*-butyl alcohol from, 2397.  
 —, starch from, 446.  
 Horse hair, artificial, cellulose nitrate, 2642, 2655.  
 —, —, preparation of, 101.  
 —, —, viscose for, 3082.  
 Horse shoe, celluloid, 2709.  
 Hotchkiss gun, 2929.  
 Hough condenser, 749.  
 Hough niter cake flaker, 808.  
 Hoyt hollander, 2092.  
 Hoyt-Horne, pulp, 2092.  
 Hudson's explosive, 2972.  
*Hull, cottonseed*, see *Cottonseed hull*.  
 Hull fiber, 574.  
 Hull shavings, dimensions of, 574, 648.  
 Humate of ammonia, 1783.  
 Humic matter, 98.  
 Humus, 2968.  
 Hyalin, 125, 1693, 2669.  
 Hyalotypes, 2865.  
*Hydantoin*, see *Glycol urea*.  
 Hydra-cellulose, 129.  
*Hydracetic*, see *Acetylphenylhydrazine*.  
 Hydracellulose, 12, 13, 123, 156, 224, 1662, 1903.  
 —, nitration of, 1662, 1902.  
 Hydracellulose nitrate, viscosity, 1663.  
*Hydrargyrum*, see *Mercury*.  
 Hydrate cellulose, 133, 137, 151.  
 Hydrated celluloses, 11.  
 —, determining, 377.  
*Hydrated celluloses*, see also *Celluloses, hydrated*.  
*Hydrated methyl oxid*, see *Methyl alcohol*.  
 Hydrated pinene, 2517.  
*Hydrated (tri) valeric acid*, see also *Valeric acid, hydrated*.  
 Hydration, copper value, 380.  
 —, water of, 129.  
 Hydrazine, 403, 940.  
 —, photographic use of, 2915.  
 Hydrazine phosphate, 2915.  
 Hydrazine sulfate, 2915.  
 —, employment of, 964.  
 Hydrazone, 173.  
*Hydric (tri) valeric acid*, see also *Valeric acid, hydrated*.  
 Hydriodic acid, acetylating starch in presence of, 414.  
 —, action of, on starch, 477.  
 —, catalysis of cellulose by, 192.  
 —, hydrolyzing cellulose by, 210.  
*iso-Hydrobenzamide*, see *Amerine*.  
 Hydrobromic acid, catalyst of cellulose by, 192.  
 —, dissolving cellulose in, 96.  
 —, dissolving cotton in, 95.  
 —, dissolving hydrocellulose by, 142.  
 —, hydrolyzing cellulose by, 210.  
 Hydrocarbon, nitration cellulose and, 225.  
 —, cyclic, turpentine substitute containing, 2569.  
*Hydrocellulose*, see also *Cellulose*.  
 $\alpha$ -Hydrocellulose, 1734.  
 Hydrocellulose, 7, 127, 220.  
 —, acetation of, 149, 188, 189.  
 —, —, phosphoric acid with, 149.  
 —, acetic esters of, 129.



- Hydrocellulose, acid number of, 134.  
 —, action cuprammonium on, 138.  
 —, action hydrobromic acid on, 142.  
 —, action hydrogen dioxide on, 12.  
 —, action phosphoric acid on, 139.  
 —, action sulfuric acid on, 137.  
 —, alcohol from, 137, 200.  
 —, classification of, 12.  
 —, conversion to mucilage, 49.  
 —, conversion to pyroxylin, 2987.  
 —, copper value of, 145, 383, 547.  
 —, cuprammonium solutions of, 46.  
 —, determining, 381, 543.  
 —, decomposition of, 136.  
 —, differentiating cellulose from, 134.  
 —, dissolving, sulfuric acid for, 97.  
 —, —, zinc chloride for, 102.  
 —, dyeing, 139.  
 —, dyestuffs and, 139.  
 —, esterification of, 141, 3006.  
 —, formation, 22, 190.  
 —, —, hydrogen dioxide for, 13.  
 —, formula of, 23.  
 —, furfuraldehyde in, 17.  
 —, gas mantle of, 863.  
 —, hygroscopicity of, 190.  
 —, hygroscopic water in, 138.  
 —, manufacture of, 102, 2026.  
 —, —, Stahmer method, 131, 132.  
 —, nitrates of, 129, 1900.  
 —, nitrates, higher of, 1902.  
 —, nitration of, 1634, 1662, 1760, 1951, 2011, 2024.  
 —, preparation of, 117.  
 —, —, Girard method, 130.  
 —, —, Tollens' process, 131.  
 —, properties of, 131.  
 —, reactions of, 139.  
 —, reducing properties of, 138.  
 —, reducing substances in, detection of, 179.  
 —, rotatory power of, 50.  
 —, saccharification of, 137.  
 —, sensitive, 2855.  
 —, solubility of, 146.  
 —, zinc chloride and, 104.  
 Hydrocellulose acetate, 130.  
 —, alcohol-soluble, 3025.  
 —, manufacture of lakes with, 150.  
 Hydrocellulose benzoates, 150.  
 Hydrocellulose formates, 150.  
 Hydrocellulose nitrate, 1634, 1662, 1630.  
 —, methylene blue absorption, 1663.  
 —, solubility in ether-alcohol, 1663.  
 —, viscosity, 1663, 1901.  
 Hydrocellulose oxalate, acid, 148.  
 Hydrocellulose sebacate, 3019.  
 Hydrocellulose sulfonates, 150.  
 Hydrochinon, 411, 2858.  
*Hydrochinon*, see also *Hydroquinone*.  
*Hydrocinnamylic acid*, see *Hydrocinamic acid*.  
 Hydrochloric acid, absorption of, by cellulose nitrate, 1699.  
 —, action of, on cellulose, 120.  
 —, —, on cotton, 117.  
 —, —, on wool, 114.  
 —, catalyst of cellulose by, 192.  
 —, dissolving cellulose by, 92, 1909.  
 —, dissolving cotton in, 95.  
 —, manufacture, niter cake for, 808.  
 —, niter cake for manufacture of, 788, 801, 805.  
 —, oxidizing sulfur with, 1042.  
 —, solubility silicon-iron alloys, 957.  
 Hydrocyanic acid, oxidation of, 894.  
*Hydrocyanic ether*, see *Ethyl cyanide*.  
*Hydro-extractors*, see also *Centrifugals*.  
*Hydroferricyanic acid*, see *Ferrihydrocyanic acid*.  
*Hydroferrocyanic acid*, see *Ferrohydrocyanic acid*.  
 Hydrofluoric acid, action of, on cellulose, 94, 142.  
 —, —, on starch, 477.  
 —, estimating, 1336.  
 —, extracting silica in cellulose with, 26, 332.  
 —, hydrolysis proteins and cellulose by, 202.  
 —, hydrolyzing cellulose by, 211.  
 —, modifying starch by, 428.  
 —, removing silica in cotton, 608.  
 Hydrofluoric ether, 279.  
 Hydrofluosilicic acid, 1271.  
 Hydrogen, ammonia from, 900.  
 —, niter cake in manufacture of, 801.  
 —, transporting, 904.  
*Hydrogen bromide*, see *Hydrobromic acid*.  
*Hydrogen chloride*, see *Hydrochloric acid*.  
*Hydrogen cyanide*, see *Hydrocyanic acid*.  
 Hydrogen dioxide, action of, on cellulose, 155, 160.  
 —, bleaching cellulose nitrate by, 2071.  
 —, oxidizing sulfur dioxide with, 1333.  
 —, persulfates for manufacture, 1294.  
 —, treatment wood pulp with, 271.  
*Hydrogen fluoride*, see *Hydrofluoric acid*.  
*Hydrogen iodide*, see *Hydriodic acid*.  
*Hydrogen peroxide*, see *Hydrogen*

- asoxiae*.  
 Hydrogen sulfide, 2823.  
 —, action on cellulose, 122.  
 —, formation from sulfite cellulose, 41.  
 —, manufacture of, alkali waste for, 1085.  
 —, sulfur from, 1085.  
 —, sulfuric acid from, 1290, 1296.  
 Hydroiodic ether, see *Ethyl iodide*.  
 $\beta$ -Hydrolysis, 376.  
 Hydrolysis, 194.  
 —, Willstätter and Zeckmeister method, 257.  
 "Hydrolysis-difference value," 175.  
 Hydromellonic acid, see *Mellonic acid*.  
 Hydrometer, correction for readings of (table), 1541.  
 —, Baumé, 1315.  
 —, Twaddle, 1315.  
 Hydroquinone, 411, 2858.  
 —, cellulose ester solvent, 2550.  
 —, intensifier, 2823.  
 Hydroquinone, see also *Quinol*.  
 Hydrostrychnine, 964.  
 Hydrosulfuric ether, see *Ethyl mercaptan*.  
 Hydrosulfurous acid, 1332.  
 Hydrous wool fat, see *Lanolin*.  
 Hydrox, 1825.  
 Hydroxyacetic acid, see *Glycollic acid*.  
 $\gamma$ -Hydroxy-anthracene, see *Anthranol*.  
 Hydroxybenzene, see *Phenol*.  
 Hydroxybenzoic (tri) acid, see *Gallic acid*.  
 Hydroxybenzyl alcohol, cellulose acetate solvent, 3026.  
 Hydroxycinnamic acid, see *Coumaric acid*.  
 Hydroxyconiferyl alcohol, 264.  
 Hydroxyethylenesulfonic acid, see *Isethionic acid*.  
 Hydroxylfurfural, 248.  
 $\gamma$ -Hydroxy-isoquinoline, see *Isocarbostryl*.  
 Hydroxyketoheptane (tetra), 18.  
 Hydroxyketoheptene, 18.  
 4-Hydroxy-2-keto-4-methylpentan, 2401.  
 Hydroxylamine, 10, 19, 249, 271.  
 —, manufacture of, 940.  
 —, reaction cellulose with, 19.  
 Hydroxylamine acetate, 271.  
 di-Hydroxylamine sulfuric acid, 1258.  
 Hydroxymethylfurfuraldehyde, 43.  
 3-Hydroxy-2-methyl- $\gamma$ -pyrone, 253.  
 Hydroxypyrazemic acid, 1663, 1666.  
 Hydroxypyruvic acid, 15, 17, 1716.  
 Hydroxypyruvic, cellulose nitrate decomposition product, 1708.  
 Hydroxyquinoline, see *Carbostyryl*.  
 Hygroscopicity, 1750.  
 Hyponone, see *Acetophenone*.  
 Hypozoid, see *Nitrogen tetroxide*.  
 Hyponitric acid, 951, 1641, 1644.  
 Iceland moss, dry plate preservative, 2834.  
 Ichthammonsalicylic acid collodion, 2795.  
 Ichthyol, cellulose nitrate and, 2792.  
 Ignition fuses, 2984.  
 Ilium, 1358.  
 Ilmenite, catalyst, 1120.  
 Ilosvay's reagent, 2335.  
 Imitation leather, see *Leather, artificial*.  
 Imitation rubber, see *Rubber, imitation*.  
 Imperata cylindrica, 327.  
 Improved E. C. powder, 2975.  
 Inflammable liquids, see *Liquids, inflammable*.  
 Incandescent gas mantles, see *Mantles, gas*.  
 Incandescent lamps, see *Lamps, incandescent*.  
 Incandescent mantle impregnation, acetic acid for, 2999.  
 Incandescent mantles, see also *Mantles, incandescent*.  
 Incendiary composition, cellulose nitrate, 1890.  
 Incendiary shell, celluloid, 2697.  
 Incrustations, metallic, celluloid for, 2680.  
 Indene, cellulose acetate solvent, 3034.  
 —, cellulose ester solvent, 2541.  
 —, reducing inflammability celluloid by, 2752.  
*p*-Indene, cellulose ester solvent, 2541.  
 Indian cotton, see also *Cotton, Indian*.  
 Indian corn, see *Corn, Indian*.  
 Indian hemp, cellulose nitrate with, 2794.  
 Indian clubs, celluloid, 2720.  
 Indicators, 1327.  
 Indigo, 66.  
 —, sulfite lye for dyeing with, 282.  
 Indigo blue, 164.  
 Indigoline, see *Indigo*.  
 Indol, action on lignocellulose, 262.  
 —, reaction for lignocellulose, 262.  
 Indulige, dyeing cellulose acetate by, 3055.  
 Indurite, 1897, 2939, 2943, 2972.

- Inflammability, cellulose nitrate, 1776.  
 Inhaler, celluloid, 2741, 2743.  
 Initials, celluloid, 2712.  
 Injection mass, celloidin, 2784.  
 Ink, writing on celluloid with, 2696.  
 Inlaying, celluloid for, 2690.  
 Inosite, 1843.  
 —, nitrating, 1843.  
 Inosite pentacetate, 184.  
 Inosite hexacetate, 184.  
*i*-Inosit hexanitate, 1848.  
*d*-Inosite methyl ether nitrate, 1848.  
 Insolks, celluloid, 2709.  
*Instrument handles, see Handles, instrument.*  
 Instrument keys, celluloid, 2730.  
 Instruments, celluloid in, 2695.  
 Insulating, celluloid for, 2700.  
 —, cellulose nitrate for, 2597.  
 —, viscose for, 3081.  
*Insulating cables, see Cables, insulating.*  
 Insulating material, amorphous cellulose for, 240.  
 Insulating material, manufacture of, with cellulose, 101.  
 Intaglio design, celluloid, 2712.  
 Intaglio plate, celluloid, 2746.  
 Intensification, 2822.  
 —, ammonium sulfide for, 2823, 2824.  
 —, barium hydroxide for, 2823.  
 —, collodion, 2822.  
 —, copper (ic) bromide for, 2824.  
 —, copper (ic) chloride for, 2824.  
 —, gold (ic) chloride for, 2824.  
 —, hydrogen sulfide for, 2823.  
 —, iridium chloride for, 2824.  
 —, iron salts as, 2822.  
 —, lead ferrocyanides for, 2824.  
 —, lead nitrate for, 2824.  
 —, mercury (ic) chloride for, 2824.  
 —, murexide for, 2823.  
 —, palladium for, 2824.  
 —, platinum chloride for, 2824.  
 —, platinum tetrachloride for, 2824.  
 —, potassium chloroplatinite for, 2824.  
 —, potassium cyanide for, 2823.  
 —, potassium ferricyanide for, 2824.  
 —, potassium iodide for, 2823.  
 —, pyrogallol for, 2823, 2824.  
 —, Schlippe's salt for, 2824.  
 —, silver ferrocyanides for, 2824.  
 —, sodium sulfantimonite for, 2824.  
 —, sodium thiosulfate for, 2823.  
 —, uranium ferrocyanide for, 2824.  
 Interference heliochromy, 2883.  
 Inulin, 7, 82, 390, 2975.  
*Iodamyl, see Amyl iodide.*  
 Iodoamylcyanine, 2874.  
*Iodantifebrin, see Iodoacelanilide.*  
 Iodate sodium nitrate containing, 729.  
 Iodeosine, 663.  
*Iodide, starch, see Starch iodide.*  
 Iodine, acetation of hydrocellulose with, 149.  
 —, acetation of phosphoric acid with, 149.  
 —, action of, on cellulose, 159, 263.  
 —, cellulose nitrate with, 2792.  
 —, collodion emulsion with, 2846.  
 —, iodizer addition to, 2812.  
 —, nitrogen tetroxide for separation of, 721.  
 —, preventing fog in collodion by, 2816.  
 —, reactions of cellulose with, 40.  
 —, sulfur combinations of, 1126.  
 —, sulfur dioxide as solvent for, 1069.  
 Iodine cyanide, iodizer addition to, 2813.  
 Iodine monobromide, 411.  
 Iodine monochloride, 411, 1098.  
 Iodizer, 2807.  
 —, additions to, 2811.  
 —, organic, 2810.  
*Iodized albumen, see Albumen, iodized.*  
 Iodizing, 2806.  
 Iodoacetocellobiose, 189.  
*Iodantipyrene, see Iodopyrene.*  
 Iodobenzene, dissolving by nitrogen tetroxide, 720.  
 Iodo-bromized collodion, 2807.  
 Iodocollodolith, 2807.  
*Iododisobutyl-o-cresol, see Europhen.*  
*Iodo (mono) ethane, see Ethyl iodide.*  
 Iodoform, 1668, 1669.  
 —, cellulose nitrate and, 2792.  
 —, iodizer addition to, 2812.  
 Iodohydrin diacetate, cellulose acetate solvent, 3033.  
 Iodol, cellulose nitrate and, 2792.  
*Iodomethane, see Methyl iodide.*  
*Iodophenacetin, see Iodophenin.*  
*Iohydrin, see Di-iodoisopropyl alcohol.*  
*Iridescent filaments, see Filaments, iridescent.*  
 Iridium, action sulfuric acid on, 1319.  
 —, catalytic action of, 1158.  
 —, oxidizing ammonia by, 912.  
 Iridium chloride, intensifying by, 2824.  
 Iridium gauze, oxidizing ammonia by, 896.  
 Iron, action nitric acid on, 955.

- Iron, action sulfuric acid on, 1319, 1321.  
 —, —, effect arsenic on, 1321.  
 —, cast, action sulfuric acid on, 1319  
 —, concentrating sulfuric acid in, 1353.  
*Iron, corrosion, see Iron, action acid on.*  
 —, detecting in sulfuric acid, 1334.  
 —, determination in pyrites, 1052  
 —, de-tinning, nitric acid in, recovery of, 947.  
 —, eliminating in cellulose nitrate, 2088.  
 —, galvanized, recovery zinc from, 802  
 —, oxidizing ammonia by, 894, 903.  
 —, passive, transporting nitric acid in, 956  
 —, passivity of, in nitric acid, 956.  
 Iron, recovery in sulfuric acid manufacture, 1310.  
 Iron, wrought, action sulfuric acid on, 1320  
 Ironac, 1003, 1321.  
 —, properties of, 1003  
 Iron acetate, 60.  
 Iron (ous) ammonium sulfate, determination nitrogen by, 977.  
 Iron ammonium sulfate, photo developing by, 2818.  
 Iron (ic) arsenate, catalytic action of, 1102.  
 Iron (ous) bromide, photographic use of, 2810.  
 Iron (ic) bromide, reducing inflammability cellulose nitrate by, 1779  
 Iron caseinate, reducing inflammability of celluloid by, 2754.  
 Iron (ic) chloride, astringent of cellulose nitrate and, 2791.  
 Iron (ic) chloride, coloring celluloid by, 1896.  
 Iron (ic) chloride, photographic use of, 2810.  
 Iron (ic) chloride, reducing inflammability cellulose nitrate by, 1779, 1780  
 Iron (ous) chloride, action on cellulose nitrate, 47.  
 —, photographic use of, 2810  
 —, reducing cellulose nitrate by, 1667.  
*Iron disulfide, see Pyrites.*  
 Iron (ic) ferrocyanide, coloring celluloid by, 1896.  
 Iron (ic) hydroxide, coloring celluloid by, 1896.  
 Iron (ic) iodide, reducing inflammability cellulose nitrate by, 1779.  
 Iron (ous) iodide, photographic use of, 2810.  
 Iron lactate, photo developing by, 2819  
 Iron nitrate, photo developing by, 2819  
 Iron nitride, oxidizing ammonia by, 908  
 Iron oxide, action of, on cellulose, 161.  
 —, catalyst of, 1029, 1111, 1116, 1158.  
 —, changes induced in cellulose by, 60.  
 —, nitric acid manufactured with, 811.  
 Iron (ic) oxide, absorbing nitrous gases by, 893  
 —, catalytic action of, 1102, 1136  
 —, celluloid lacquer containing, 2569  
 Iron (ic) oxalate, reducing inflammability in cellulose nitrate by, 1789.  
 Iron (ous) oxidizing hydrogen sulfide with, 1290  
*Iron pyrites, see also Iron sulfide.*  
 Iron pyrites, 1008, 1043.  
 —, sulfur from, 1024  
 Iron resins, 61.  
 Iron salts, action on cellulose, 112.  
 —, photo developing by, 2819.  
 Iron sodium sulfate, photo developing by, 2818  
 Iron sulfate, acetating cellulose in presence of, 3010.  
 Iron (ic) sulfate, oleum from, 1130.  
 —, titration of, 1328  
 Iron (ous) sulfate, niter cake for manufacture of, 790.  
 —, nitric acid manufacture with, 812.  
 —, photo developing by, 2818  
*Iron triol, see Iron (ous) sulfate*  
 Isinglass, iodizer addition to, 2813.  
*Iso-amyl, see iso-Amyl.*  
*Isoborneol, see iso-Borneol.*  
*Isobutyl, see iso-Butyl.*  
*Isobutyryloxynaphthoquinone, see Falsic acid.*  
 Isocollids, 36.  
 Isochromatic emulsion, 2870  
 Isocol, 2871, 2874  
*Iso-compounds, see iso-compounds*  
 Isocyanic ester, dissolving cellulose by, 107.  
 Isocyanin, 2872.  
 Isocyanin group (dyestuffs), 2871  
*Isocyanphenyl chloride, see Phenyl-carbylamine chloride.*  
*Isocyanuric acid, see Cyanuric acid*  
*Isodulcitol, see iso-Dulcitol.*  
 $\beta$ -Isodurylic acid, *see Trimethyl-benzic acid.*

- Isoeugenol*, see *isp-Eugenol*.  
*Isopral*, see *Trichloroisopropyl alcohol*.  
 Isoprene, cellulose acetate solvent, 3034.  
*Isopropyl*, see *iso-Propyl*.  
*Isopropyl benzene*, see *Cumene*.  
*Isopropyl carbinol*, see *Isobutyl-alcohol*.  
*Isopropylformic acid*, see *Butyric, iso-acid*.  
*Isopropyl toluene*, see *Cymene*.  
*Isopropylcarballic acid*, see *Cum-pharonic acid*.  
*Isosaccharic acid*, see *iso-Saccharic acid*.  
*Isotarturic acid*, see *m-Tartaric acid*.  
 Ivorine, 2662.  
 Ivoride, 2669.  
 Ivorine, 2669.  
 Ivory, artificial, nitrated paper for, 1816.  
 —, imitation, cellulith for, 338.  
 —, photographing on, 2800.  
 —, substitute, celluloid for, 2718.  
 —, vegetable, nitrating, 1875.  
 Ivory nut, composition of, 387.  
 —, nitrating, 1875, 1876.  
 Ivoryine, 1694.  
  
 Jack pine, composition of, 261.  
 Jahn denitration system, 1464.  
 Jalap, dry plate preservative, 2829.  
 Japan, sulfuric acid manufacture in, 1010.  
 Japanese paints, 2585.  
 Japanese sulfur, 1037.  
*Japanese wood oil*, see *Tung oil*.  
 Japan wax, paint remover containing, 2565.  
 Jar cover, celluloid, 2/18.  
 Jet, Körting, 1234, 1375.  
 —, imitating, celluloid for, 2722.  
 Jewelry, celluloid, 2712.  
 Jewelry clasp, celluloid, 2712.  
 Jewelry, imitation, celluloid, for, 2712.  
 Jewel slide, celluloid, 2712.  
 Johnson-Borland powder, 2972.  
 Johnson's powder, 2972.  
 J. powder, 2972, 2976.  
 Jordan refiner, 224.  
 Jujube paste, dry plate preservative, 2834.  
*Juniper, emptyreumatic oil of*, see *Cade oil of*.  
*Juniperus oxycedrus*, 252.  
 Jute, 241, 245.  
 —, action dilute nitric acid on, 10.  
 —, ash in, 244.  
 Jute, Binlipatam, 246.  
 —, carbon content, 10.  
 —, cellulon as substitute for, 246.  
 —, cellulose in, 244.  
 —, chemical properties of, 248.  
 —, China, 246.  
 —, chlorination of, 363.  
 —, chlorine compounds of, 251, 259.  
 —, composition of, 10, 246, 247.  
 —, constants of, 244.  
 —, decomposition of, 251.  
 —, "heart damage" of, 339.  
 —, hygroscopicity of, 513.  
 —, lignin in, 244.  
 —, mercerizing, 234.  
 —, methoxyl in, 251.  
 —, moisture in, 244.  
 —, nitrated, 8, 251, 1807, 1808, 1874, 1878.  
 —, oxidation of, 152.  
 —, oxygen content, 10.  
 —, pectic matter in, 244.  
 —, protein in, 244.  
 —, reactivity of, 248.  
 —, removal lignin from, 363.  
 —, retting of, 246.  
 —, rotatory power of, 50.  
 —, substitute for, 246, 248, 253.  
 —, West African, 246.  
 Jute iodide, 9.  
 Jute pentanitrocellulose, 1807.  
 Jute tetranitrate, 1807, 1808.  
 Jute trinitrate, 1808.  
  
 Kaleidoscope, celluloid, 2729.  
 Kaltenbach apparatus, 1445.  
 Kamutulicon, 2602.  
*Kandol*, see *Canadol*.  
 Kapok, artificial filaments from, 2634.  
 —, nitration of, 329, 1878.  
 Kast's test, 285, 320.  
 Kauri, cellulose ester solvent, 2541.  
 Kelp, manufacture of acetone from, 2397.  
 Keratin, 1889.  
 Kerite, 2603, 2670.  
 Keosene, drying cellulose nitrate by, 2157.  
 Kerotype, 3080.  
 Kessler apparatus, Teisset-Prat modification, 1385.  
 —, Vialleix-Perrin modification, 1386.  
 Kessler system acid concentration, 1383.  
 Kestner acid elevator, 1275.  
 Kestner fan, 1239.  
*Keto propane*, see *Acetone*.  
 Ketones, 2395.  
 —, distilling from carbohydrates, 41.

- Ketones**, distilling from cellulose, 41.  
 —, distilling from starch, 41.  
 —, distilling from sugar, 41  
**Ketose**, 6.  
**Ketose trinitrates**, 1844.  
**Ketotetrose**, 7.  
**Ketotriose**, 6.  
**Keys**, instrument, celluloid, 2730  
**Khandeish cotton**, constants of, 506  
**Kidney**, cotton, 494.  
**Kier**, boil-off, 596.  
**Kieselguhr**, absorbing moisture in cellulose nitrate by, 4754.  
 —, nitric acid absorbent, 948.  
 —, absorbing sulfuric acid by, 1313  
**Kieserite**, sulfuric acid from, 1297.  
*Kinematograph films*, see *Films, continuous*.  
**Kinetite**, 2972.  
*Kinic acid*, see *Quinic, acid*.  
**Kjeldahl method** determining nitrogen, 2318.  
**Klinisch emulsion A sensitizer**, 2872  
**Knife handles**, celluloid, 2696  
**Knorr extraction apparatus**, 542  
**Knotter**, 2104.  
**Körting jet**, 1234, 1375.  
**Koji-diastase**, 475.  
**Kolf blasting powder**, 1851.  
**Kolf smokeless powder**, 1851.  
**Kol's powder**, 2972.  
**Kowe**, 246.  
**Krag rifle**, 2930.  
*Kreatinine*, see *Creatinine*.  
**Kreide**, 2558, 2974.  
**Kreide paper**, 2852.  
**Krellblei**, 1368.  
**Kresylite**, 2972.  
**Krummel dynamite**, 1810.  
**Krystallin**, 1693.  
**Kundt's law**, 2873.  
**Kuproid**, 86.  
**Kurrachee cotton**, constants of, 506  
*Kyanuran*, see *Hydroxy-quinoline (4)*.  
**Kynoch smokeless powder**, 2972  
  
*Laeco-compounds*, see *l-Compounds*.  
**Labels**, celluloid, 2701.  
**Lac**, substitute for, 567.  
**Lace**, gilding, cellulose acetate for, 3056.  
 —, lacquering, cellulose acetate for, 3056.  
 —, metallizing, cellulose nitrate for, 2599.  
 —, silvering, cellulose acetate for, 3056.  
 —, stiffening celluloid for, 2711.  
**Lacing fastening**, celluloid, 2708.  
**Lacing strips**, celluloid, 2709.  
**Lacing tips**, celluloid, 2709.  
*Lacquer*, see also *Priming liquids, Lakes, Pigments, and Varnishes*.  
*Lacquer, brush*, see *Brush lacquer*.  
*Lacquer, floor*, see *Floor lacquer*.  
**Lacquers**, amyl acetate, 2580  
**Lacquer, brush**, cellulose nitrate, 2586  
 —, celluloid, 2572, 2577, 2601, 2608  
 —, cellulose acetate, 3046, 3061.  
 —, cellulose nitrate, 2572  
 —, cellulose phenol condensing product for, 237  
 —, collodion, 2572  
 —, dip, cellulose nitrate, 2585.  
 —, nitrated paper for, 1816.  
 —, nitrostarch, 1568.  
 —, pyroxylin, resin, 2590  
*Lacquer, resin*, see *Resin lacquer*.  
 —, soya bean for, 2551  
**Lacquering**, mechanics of, 2584.  
**Lacrosse balls**, celluloid, 2728.  
**Lactic acid**, 2391.  
 —, action of, on cotton, 110.  
 —, —, on starch, 477.  
 —, alcohol recovery by, 2558  
**Lactic esters**, amyl acetate substitute, 2582  
**Lactic acid**, cellulose acetate solvent, 3031, 3053  
 —, cellulose formate solvent, 3017.  
 —, cellulose nitrate solvent of alcohol and, 2388  
 —, denitrating cellulose nitrate by, 1899  
 —, ether recovery by, 2558.  
 —, formation from cellulose, 45.  
 —, manufacture from starch, 240.  
 —, mordanting with, 282.  
 —, paint remover containing, 2563.  
*Lactic ether*, see *Ethyl lactate*.  
**Lactin**, nitrated, 1855.  
**Lactite**, 2670, 2753.  
**Lactose**, 7, 398  
 —, nitrating, 1843, 1857.  
 —, orcein-litmus test papers, 1770.  
**Lactose diacetate**, 184.  
**Lactose hexanitrate**, 1847.  
**Lactose monoacetate**, 184  
**Lactose nitrate**, 1845  
**Lactose octoacetate**, 184  
*Lactose octacetate*, see also *Octacetyl-lactose*.  
**Lactose octonitrate**, 1847  
**Lactose pentanitate**, 1843, 1847, 1850.  
**Lactose tetraacetate**, 185.  
**Lactose trinitrate**, 1843, 1850.

- Lactroid, 2670.  
 Lactylamidophenyl amyl carbonate, cellulose ester solvent, 2546.  
 Lactylamidophenyl ethyl carbonate, cellulose ester solvent, 2546.  
 Lactylamidophenyl isobutyl carbonate, cellulose ester solvent, 2546.  
 Lactylamidophenyl methyl carbonate, cellulose ester solvent, 2546.  
*Lactylphenetidinc, see Lactophenin.*  
 Laevoglucosan, 42, 423.  
*Laevoglycosan, see also l-Glucoran.*  
 Laevoglucosan triacetate, 42.  
 Laevoglucosan tribenzoate, 42.  
*Laevulose, see also Fructose.*  
 Laevo-oxycellulose, 172.  
 Laevosin nitrate, 1848.  
 Lagos cotton, constants of, 506.  
 —, length of fibers, 509.  
 La Guayran cotton, constants of, 506.  
*Lakes, see also Pigments.*  
 —, hydrocellulose acetate for, 150.  
 Lamp, Carcel, 2494.  
 —, Harcourts, 2494.  
 Lampblack, 2971.  
 Lamp filaments, artificial silk for, 2645.  
 Lanfrey powder, 1803.  
 Lannoy's white powder, 1810.  
 Lanolin, 2617.  
 Lantern slides, 2865.  
 Lanthanum acetate, 410.  
 Lanthanum nitrate, 940.  
 Lanthanum oxide, catalytic action of, 1122, 1158.  
 Lapis, imitation, cellulith for, 338.  
*Laricic acid, see Agaricic, acid.*  
*Larix laricina, composition of, 261.*  
*Larix occidentalis, composition of, 261.*  
 Laudanum, dry plate preservative, 2828, 2833.  
*Laughing gas, see Nitrogen monoxide.*  
 Launder, 1432.  
*Laurinic acid, see Lauric, acid.*  
*penta*Lauryl glucose, 187.  
 Lava, volcanic, lifting towers with, 1277.  
 Lead, acid-resisting qualities of, 1323.  
 —, action fluorine on, 1208, 1324.  
 —, action sulfuric acid on, 1319, 1322.  
 —, alloys, action sulfuric acid on, 1324.  
 —, analysis, in pyrites, 1055.  
 —, block test, 1801.  
 Lead, burning, 1208.  
 —, burning, early, 1008.  
 —, catalyst inhibitor, 905.  
 —, desilvered, 1324.  
 —, flash point of, 1208, 1324.  
 —, hard, action, sulfuric acid on, 1323.  
 —, —, composition of, 1298.  
 —, lining, boiling vats with, 2081.  
 Lead ores, niter cake for treating, 803.  
 Lead, salts of, action on cellulose, 112.  
 —, soft, action, sulfuric acid on, 1323.  
 —, welding, 1208.  
 Lead-copper-antimony, transporting nitric acid in, 956.  
 Lead acetate, basic, cellulose ester solvent, 2549.  
 —, coloring celluloid by, 1896.  
 —, iodizer addition to, 2812.  
 —, mordanting cellulose with, 115.  
 —, splitting pinene hydrochloride by, 2528.  
 —, stabilizing cellulose nitrate by, 1703.  
 Lead azide, 1859, 2948.  
 —, detonator of nitroerythrite and, 1858.  
 Lead chamber, capacity, 1211.  
 —, circular, 1216.  
 —, composition, lead in, 1208.  
 —, connections, 1210.  
 —, crystals, acetating cellulose with, 3008.  
 —, dimensions of, 1210.  
 —, falding, 1213.  
 —, fittings for, 1226.  
 —, Harris-Thomas, 1216.  
 —, housing, 1209.  
 —, intensive working of, 1211.  
 —, introducing nitric acid in, 1227.  
 —, life of, 1209.  
 —, Meyer, 1215.  
 —, Mills-Packard, 1214.  
 —, Moritz, 1212.  
 —, Niedenfuhr, 1213.  
 —, repairs, 1212.  
 —, substitute, Woulfe's bottles, 1222.  
 —, tangential, 1215.  
 —, water supply to, 1232.  
*Lead Chamber, see also Acid, manufacture, sulfuric.*  
*Lead chamber crystals, see Nitrosyl sulfate.*  
*Lead chamber process, see also Chamber process.*  
 Lead chloride, reducing inflamma-

- bility of cellulose nitrate by, 1779, 1780.
- Lead chromate, catalyst, 917, 942, 1120.
- , coloring celluloid by, 1896.
- , reducing inflammability of cellulose nitrate by, 1779, 1780.
- Lead cyanamide, 930.
- Lead dioxide, purifying sulfuric acid by, 1348.
- Lead ferrocyanides, intensifying by, 2824.
- Lead fluoride, reducing inflammability of cellulose nitrate by, 1780.
- Lead hydroxypyruvate, 1716.
- Lead iodide, 1328.
- , coloring celluloid by, 1896.
- , dissolving cellulose by formic acid and, 110.
- , reducing inflammability of cellulose nitrate by, 1779, 1780.
- Lead mannitol nitrate, 1868.
- Lead nitrate, 1911, 2964, 2970.
- , cellulose nitrate explosive containing, 1626.
- , determining sulfuric acid by, 1328.
- , explosive of nitrogen tetroxide and, 721.
- , intensifying by, 2824.
- , nitric acid from, 814.
- , preparing, from NO and lead peroxide, 700.
- Lead nitride, 1859.
- Lead nitric, iodizer, addition to, 2812.
- , reducing inflammability of cellulose nitrate by, 1780.
- Lead oxide, 2948, 3081.
- , catalyst, 942.
- Lead oxychlorid, reducing inflammability of cellulose nitrate by, 1788.
- Lead peroxide, 700, 2976.
- , decreasing inflammability of cellulose nitrate by, 1780.
- Lead phosphate, reducing inflammability of cellulose nitrate by, 1779, 1780.
- , coloring celluloid by, 1896.
- Lead plaster, cellulose nitrate and, 2793.
- Lead ricinoleate, reducing inflammability of cellulose nitrate by, 1786.
- Lead sulfate, manufacture, galena for, 1081.
- Lead sulfate, see also Galena.*
- Lead sulfide, coloring celluloid by, 1896.
- , sulfur from, 1025.
- Lead sulfuricinate, reducing inflammability of cellulose nitrate by, 1786.
- Lead trinitroresorcinate, 1860, 2964.
- Leaf, gold, see Gold leaf*
- Leather, artificial, 2381.
- , cellulose for, 336.
- , cellulose nitrate, 559, 2639, 2025, 2032, 2599, 2655.
- , cuprammonium cellulose for, 78.
- , preparation of, 104.
- , solvent recovery in, 2607.
- , napholstery, cellulose nitrate, 2612.
- , viscose for, 3079.
- Leather, artificial, see also Leather, imitation.*
- Leather, cements, celluloid lacquers for, 2579.
- Leather, cements, see Cements, leather*
- , coating, 2381.
- , cellulose nitrate for, 559, 2618.
- Leather collodion, 2907.
- Leather, enameled, cellulose nitrate for, 2609, 2620.
- , enameling, 2381.
- , imitation, cellulose nitrate, 2604.
- , vulcanized fiber for, 105.
- Leather, imitation, see also Leather, artificial.*
- , nitrated cork as dressing for, 2610.
- , patent, cellulose nitrate for, 2609.
- , sensitizing, 2847.
- , specific heat of, 39.
- , split, cellulose nitrate for, 2609, 2620.
- , substitute, soya bean as, 2551.
- , treating, 2381.
- , acetone for, 2400.
- , utilization, niter cake for, 792.
- Leatherboard, 2603.
- Leatherette, 2602.
- Leatherine, 2602.
- Leatheroid, 105.
- Leaves, composition of, 11.
- , nitrating, 1806.
- Leblanc process, 1029.
- Le celluloid arme, 2710.
- Leguminosae, starch in, 405.
- Lehner silk, 2622.
- Lenite, 2972.
- Leonard powder, 2630.
- Lepargylic acid, see Azelaic acid.*
- Lepidin, reaction with lignocellulose, 262.
- Lepidon, see Methyl carbostyril (g).*



- Leucaniline, leuco bases of, 2884.  
 Leucoplastids, 403.  
 Leucinic acid, *see* Leucic acid.  
 Leucites, amyliferous, 401.  
 Leucoalizarin, *see* Anthrarobin.  
 Leuco blue, leuco bases of, 2884.  
 Levant cotton, constants of, 506.  
 Levers, celluloid, 2698.  
 Levosine acetate, 184.  
 Levulinic acid, cellulose nitrate solvent of alcohol and, 2388.  
 Levulin nitrate, 1848.  
 Levulosan trinitrate, 1847.  
 Levulose, 388, 1867.  
 Levulose dibutyrate, cellulose ester solvent, 2549.  
 Levulose diacetate, cellulose ester solvent, 2549.  
 Levulose distearate, cellulose ester solvent, 2549.  
 Levulose ditartrate, cellulose ester solvent, 2549.  
 Levulose pentacetate, cellulose ester solvent, 2549.  
 Levulose tetratartrate, cellulose ester solvent, 2549.  
 Levulose triacetate, cellulose ester solvent, 2549.  
 Levulosin, 7.  
 Lezinsky explosive, 1818.  
 Lichenin, 7.  
 Lichenine triacetate, 184.  
 Licorice, dry plate preservative, 2834.  
 Licorice juice, dry plate preservative, 2830.  
 Licorice sugar, *see* Sugar, licorice.  
 Linden, ash in, 241.  
 —, protein in, 244.  
 Light, action of, on cellulose, 40, 59.  
 Light filters, 2874.  
 Light, polarized, action of, on cellulose nitrate, 1757.  
 Light polarizing, cellulose nitrate membranes of, 2913.  
 Light acetone oil, *see* Acetone oil, light.  
 Light lignoin, *see* Canadol.  
 Lighters, pocket, celluloid for, 2697.  
 Lightning paper, 1816.  
 Lignia nitrica, 1893.  
 Lignification, degree of, determining, 257.  
 —, tests for, 355.  
 Lignin, 10.  
 —, acetation of, 323, 2051.  
 —, —, Stevenson process, 323.  
 —, acetic acid group in, 354, 368.  
 —, acetyl content of, 55.  
 —, action of ozone on, 152.  
 —, alcohol from, 664.  
 Lignin, analysis of, 353.  
 —, bleaching, 321.  
 —, "bleaching test" of, 374.  
 —, charred, 2968.  
 —, chlorination of, 362, 363.  
 —, chlorine absorption of, 371.  
 —, coniferous, 663.  
 —, determining, 370.  
 —, disintegrating, 2052.  
 —, dissolving, hydrochloric acid for, 94.  
 —, distillation of, 256.  
 —, estimation of, 259, 370.  
 —, —, acetic acid method, 368.  
 —, gums in, purifying from, 321.  
 —, hydrolysis of, 368.  
 —, modifying, high temperatures for, 43.  
 —, methoxyl group in, estimation of, 353, 368.  
 —, nitration, 285, 316, 321, 323, 1808, 1873.  
 Lignin, nitration, *see also* Nitrolignin.  
 —, nitric acid action upon, 1572.  
 —, nitration cellulose and, 1815.  
 —, —, centrifugal, 2053.  
 —, —, Claessen method, 2054.  
 —, —, pot method, 2052.  
 —, —, Smokeless Powder Co. method, 2051.  
 —, —, Schultze's method, 2051.  
 —, —, Westfälische process, 2053.  
 —, —, yields, 1814.  
 —, ozonides, 152.  
 —, phloroglucinol absorption of, 371.  
 —, preparation for nitration, 2052.  
 —, purification of, 320, 321.  
 —, residual, determining, 373.  
 —, resins in, purifying from, 321.  
 —, —, turpentine for removal of, 321.  
 —, tests for, 355, 356, 373.  
 Lignin, *see also* Cellulose, Cotton, Paper, Wood.  
 —, nitrates, stabilizing, 318.  
 —, —, stability of, 285.  
 Ligninsulfonic acid, 264.  
 Lignite, 1810.  
 Lignocellulose, 8, 241.  
 —, acetated, 323, 324.  
 —, acetic acid from, 45.  
 —, action of *p*-amidobenzylidene acetophenone on, 262.  
 —, action amyl alcohol on, 262.  
 —, action anethol on, 262.  
 —, action aniline salts on, 262.  
 —, action anisol on, 262.  
 —, action *o*-bromphenetidin chloride on, 262.

- Lignocellulose**, action carbazol on, 262.  
 —, action chlorine on furfural, 256.  
 —, action, cresol on, 262.  
 —, action of diphenylamine on, 262.  
 —, action of guaiacol on, 262.  
 —, action of indol on, 262.  
 —, action of lepidin on, 262.  
 —, action of dimethyl-*p*-phenylenediamine on, 262.  
 —, action of methylheptenon on, 262.  
 —, action of  $\alpha$ -naphthol and potassium chlorate on, 262.  
 —, action of naphthol on, 262.  
 —, action of naphthylamine on, 262.  
 —, action of *p*-nitrobenzylidene acetophenone on, 262.  
 —, action of orcin on, 262.  
 —, action of phenol on, 262.  
 —, action of phenol and potassium chlorate on, 262.  
 —, action of *m*-phenylenediamine on, 262.  
 —, action of phloroglucin on, 262.  
 —, action of pyrocatechol on, 262.  
 —, action of pyrogallol on, 262.  
 —, action of pyrrol on, 262.  
 —, action of resorcin on, 262.  
 —, action of skatol on, 262.  
 —, action of thiophene on, 262.  
 —, action of thymol on, 262.  
 —, action of *p*-toluidine on, 262.  
 —, action of toluylenediamine and thallin sulfate on, 262.  
 —, analysis of, 352.  
 —, composition of, 8.  
 —, determination of, 9.  
 —, estimation of, 370.  
 —, fluorescence of, 52.  
 —, hydrolysis of, 10.  
 —, jute, nitrated, 1807.  
 —, nitration of, 251, 285, 317, 1678.  
 —, phloroglucinol absorption of, 349.  
 —, properties of, 248.  
 —, purification of, determining, 278.  
 —, reactions of, 248, 349.  
 —, testing for, 373.  
 —, xylidine on, action of, 262.  
**Lignocellulose**, nitrating, see also *Nitrolignin*.  
**Lignoid**, 2667.  
**Lignone**, celluloses, 14.  
 —, constitution of, 248.  
 —, empirical formula of, 19.  
 —, formula of, 19.  
 —, reactions of, 248.  
**Lignone sulfuric acid**, 1644.  
**Lignonsulfonate**, 283.  
**Lignonsulfonate**, recovery of, 284.  
**Lignonsulfonic acid**, nitrating, 1880.  
**Lignorsin**, 283.  
 "Lignose," 241.  
**Lignose**, nitrated, see *Nitrolignin*.  
*Lignroin*, light, see *Canadol*.  
**Limbs**, artificial, celluloid, 2741.  
*Lime*, see *Calcium oxide*.  
*Lime nitrogen*, see *Calcium cyanamide*.  
**Lime soaps**, paint remover containing, 2565.  
**Limestone**, acid disposal by means of, 1913.  
**Limestone**, see also *Calcium carbonate*.  
**Linanyl acetate**, cellulose ester solvent, 2549.  
**Lignerusta Walton**, 2603.  
**Linden**, ash in, 244.  
 —, cellulose in, 244.  
 —, constants of, 241.  
 —, lignin in, 244.  
 —, moisture in, 244.  
 —, pectic matter in, 241.  
**Limen**, action of sulfuric acid on, 117.  
 —, bleaching, 349, 618.  
 —, distinction between cotton, 501.  
 —, nitrating, 557.  
 —, oxidation of, 156.  
 —, nitrostarch coating for, 1568.  
 —, proteins in, 523.  
 —, waterproofing, cellulose acetate for, 3057.  
 —, cellulose nitrate for, 3057.  
**Line screens**, 2877.  
**Linoleum**, soya bean for, 2551.  
**Linseed**, dry plate preservative, 2834.  
 —, infusion of, 2817.  
**Linseed oil**, celluloid lacquer containing, 2578.  
 —, sulfonated, paint remover containing, 2565.  
 —, viscose and, 3081.  
**Lint**, ash in, 526.  
**Linters**, bleaching, 576.  
 —, constants of, 506.  
 —, drying, 576.  
 —, dimensions of, 574.  
 —, loss in treatment, 573.  
 —, manufacture of, 577.  
 —, nitrating, 559, 570.  
 —, preparing, for nitration, 575.  
 —, purifying, 569, 581.  
 —, seconds, dimensions, 648.  
 —, teasing, 622.  
**Lippmann plate**, 2883.  
*Liquidamber*, see *Storax*.  
**Liquid court plaster**, 2795.  
**Liquid cuticle**, 2664, 2795.  
**Liquid sulfur dioxide**, see *Sulfur*.

- dioxide, liquid*  
*Liquids, bronzing, see, Bronzing liquids.*  
 --, corrosive, elevating, 957.  
 --, --, storage, 955.  
 --, --, transporting, 955.  
*Liquids, corrosive, see also Acid.*  
 --, handling, economical methods, 2561.  
 --, inflammable, partitioning, 2561.  
 --, vapor of, inflammability, reducing, 2561.  
 --, inflammable, storage, 2559.  
 --, --, transportation, 2559.  
 --, --, weighing, 2561.  
*Liquids, inflammable, see also Solvents.*  
 --, raising, pumps for, 1276.  
 --, turbid, clarifying by nitrated resins, 1870.  
*Liquor constringens, 2789.*  
*Lithia, see Lithium oxide.*  
*Lithium amide, 938.*  
*Lithium carbide, 338.*  
*Lithium bromide, 2810.*  
 --, dissolving cellulose by, 108.  
 --, reducing inflammability cellulose nitrate by, 1779.  
*Lithium chloride, catalyst, 917.*  
 --, diffusion through cellulose nitrate, 1775.  
 --, dissolving cellulose by, 108.  
 --, dissolving cellulose by formic acid and, 110.  
 --, dissolving cellulose by trichloroacetic acid and, 110.  
 --, reducing inflammability of cellulose nitrate by, 1779.  
*Lithium hydride, 938.*  
*Lithium iodide, 2810.*  
 --, dissolving cellulose by, 108.  
 --, reducing inflammability of cellulose nitrate by, 1779.  
*Lithium nitrate, dissolving cellulose by, 108.*  
*Lithium nitride, 938.*  
*Lithium salts, photographic uses of, 2809.*  
*Lithium sulfide, catalyst, 217.*  
*Lithium thiocyanates, dissolving cellulose by, 107.*  
*Lithic acid, see Uric acid.*  
*Lithofacteur, 1592, 1810, 2972.*  
*Lithographic stone, factitious, celluloid for, 2746.*  
*Lithopone, niter cake for manufacture of, 788.*  
*Litho transfers, celluloid for, 2909.*  
*Lithotrite, 1810.*  
*Lithoxyle, 2669.*  
*Litmus, indicating stability nitrate cellulose with, 1621.*  
*Litmus-orcein-lactose, test papers, 1776.*  
*Liver of sulfur, see Potassium polysulfide.*  
*Livepool cotton powder, 2972.*  
*Loam, absorbing sulfuric acid, 1323.*  
*Locust beans, starch from, 446, 447.*  
*Lodgepole pine, composition of, 261.*  
*Logwood, lacquers of cellulose nitrate and, 2592.*  
*Longlea, pine composition of, 261.*  
*Lorgnette holder, celluloid, 2712.*  
*Louisiana cotton, length of fibers, 509.*  
*Lovibond tintometer, 552.*  
*Lubricant, celluloid as constituent in, 2578.*  
*Lucrate, 2603.*  
*Lunge plates, 1271.*  
*Lunge towers, 1217.*  
*Lusol, 1871.*  
*Lummer-Brodhuhn colorimeter, 1661.*  
*Lupose, 7.*  
*Lupinus hirsutus, 237.*  
*Lustracellulose, 86, 3063.*  
*Lycopodium, pyrotechnic of cellulose nitrate and, 1617.*  
*Lynx hair, cellulose nitrate for artificial, 2642.*  
*Lyxit pentanitate, 1848.*  
*MacMichel viscosimeter, 2281.*  
*Maceio cotton, constants of, 505, 506.*  
*Mackie powder, 2973.*  
*Madder, 501.*  
*Madras cotton, diameter of fibers, 508.*  
 --, length of fibers, 509.  
*Magazines, construction of, 1915.*  
*Magenta, 552.*  
*Magenta, see also Fuchsine.*  
*Magnesia, see Magnesium oxide.*  
*Magnesian cellulose, 2603, 3079.*  
*Magnesite, 792.*  
*Magnesium, flash light of cellulose nitrate and, 1636.*  
 --, oxidizing ammonia by, 695.  
 --, powdered, 2969.  
*Magnesium acetate, cellulose nitrate inflammability reducer, 1783.*  
 --, smoke reducer in powder, 2984.  
*Magnesium bisulfite, bleaching cellulose with, 27.*  
*Magnesium borate, reducing inflammability of cellulose nitrate by, 1788.*

- Magnesium borate, smoke reducer in powder, 2984.  
 Magnesium bromide, dissolving cellulose by formic acid and, 140  
 —, reducing inflammability of cellulose nitrate by, 1779  
 Magnesium carbide, 2531.  
 Magnesium carbonate, 2969.  
 —, cellulose nitrate stabilizer, 1614.  
 —, paint remover containing, 2564.  
 —, smoke reducer in powder, 2984.  
 Magnesium caseinate, reducing inflammability of celluloid by, 2754.  
 Magnesium chloride, action of, on cellulose, 113.  
 —, —, on cotton, 120.  
 —, celluloid lacquer containing, 2578.  
 —, cellulose plastics containing, 335.  
 —, dissolving cellulose by, 68, 105.  
 —, diffusion through cellulose nitrate, 1775.  
 —, electrolysis of, 274.  
 —, recovery of solvents by, 2557.  
 —, reducing inflammability of cellulose nitrate by, 1779, 1789  
 —, stabilizing cellulose nitrate with, 1681.  
 Magnesium citrate, cellulose nitrate solvent of alcohol and, 2388.  
 —, smoke reducer in powder, 2984.  
 Magnesium cyanamide, manufacture, 922.  
 Magnesium halide, decreasing inflammability in cellulose nitrate by, 1779.  
 Magnesium iodide, reducing inflammability of cellulose nitrate by, 1779.  
 Magnesium lactate, cellulose nitrate solvent of alcohol and, 2388.  
 Magnesium levulinate, cellulose nitrate solvent of alcohol and, 2388.  
 Magnesium methyl iodide, 434.  
 Magnesium monosulfite, bleaching cellulose with, 27.  
 Magnesium nitrate, 2817.  
 Magnesium nitride, manufacture, 922.  
 Magnesium naphtholate, 2529.  
 Magnesium oleate, reducing inflammability of cellulose nitrate by, 1785.  
 Magnesium oxalate, cellulose nitrate solvent of alcohol and, 2388.  
 —, smoke reducer in powder, 2984.  
 Magnesium oxide, cellulose plastics containing, 335.  
 —, reducing inflammability in cellulose nitrate by, 1789.  
 Magnesium plumbite, oxidizing ammonia by, 807.  
 Magnesium resins, reducing inflammability of celluloid by, 2752.  
 Magnesium ricinoleate, reducing inflammability in cellulose nitrate by, 1786.  
 Magnesium sulfate, 2968, 2974.  
 —, absorbing sulfuric acid by, 1313.  
 —, action of, on cotton, 120.  
 —, catalyst of, 1163, 1172.  
 —, development fungi by, 1802.  
 —, niter cake for, manufacture of, 792, 804.  
 —, oleum from, 1131.  
 —, photo developing by, 2819.  
 —, platinized, 1115.  
 —, catalytic action of, 1103.  
 —, —, contact mass of, 1105.  
 —, reducing inflammability in cellulose nitrate by, 1789.  
 Magnesium sulfite, preparation wood pulp by, 276.  
 Magnesium sulfuric acid, reducing inflammability in cellulose nitrate by, 1786.  
 Magnesium tartrate, cellulose nitrate solvent of alcohol and, 2388.  
 —, smoke reducer in powder, 2984.  
 Magnetite, 906.  
 Mairine, cellulose ester solvent, 2550.  
 Maize, cellulose from, 332.  
 —, nitrated, 1806.  
 Maize starch, *see* Starch, corn.  
 Malachite green, 373.  
 —, coloring powder by, 2971.  
 —, dyeing cellulose acetate by, 3055.  
 —, leuco bases of, 2884.  
 Malayan camphor, *see* Borneol.  
 Maleic acid, *see* Malic, acid.  
 Malic acid, 2822.  
 —, cellulose nitrate decomposition product, 1665.  
 Mallein, filtration, collodion bags for, 1773.  
 Malonic acid, 111, 166.  
 Malonic ether, *see* Ethyl malonate.  
 Malonyl urea, *see* Barbituric acid.  
 Mallow family, *see* Malvaceae.  
 Malt, bleaching with, 608.  
 Maltase, 189, 190.  
 Malt extract, action of, on starch, 417.  
 Malt grains, nitrating, 1877.  
 Malt liquor, dry plate preservative, 2828.  
 Malt meal, nitrating, 1877.  
 Malt sugar, *see* Maltose.  
 Malt vinegar, dry plate preservative, 2834.

- Malto-carbinol, 407.  
 Maltodextrin, 407, 472.  
 —, cellulose nitrate inflammability decreasing, 1783.  
 Maltol, 43, 58, 249, 253.  
 Maltose, 7, 193, 398, 435.  
 —, hydrolysis, 1768.  
 iso-Maltose, 473, 479.  
 Maltose-monoacetate, 184.  
 Maltose octoacetate, 184.  
*Maltose octoacetate, see also Octacetyl-maltose.*  
 Maltose octonitrate, 1847.  
*Malvaceae*, 487.  
 Manganates, producing nitrogen with, 685.  
 Manganese, catalyst, 916.  
 —, niter cake for separation of, 803.  
 —, oxidizing ammonia by, 905.  
 —, separation from zinc by niter cake, 803.  
 Manganese acetate, 2996.  
 Manganese bromide, reducing inflammability of cellulose nitrate by, 1779, 1782.  
 Manganese chloride, cellulose nitrate solvent, 2258.  
 Manganous chloride, coloring celluloid by, 1896.  
 Manganese chloride, reducing inflammability of cellulose nitrate by, 1779, 1782.  
 Manganese dioxide, nitric acid manufactured with, 811.  
 Manganese iodide, reducing inflammability of cellulose nitrate by, 1779, 1782.  
 Manganese(ic) nitrate, nitric acid from, 814.  
 Manganese nitrate, 241, 919, 947.  
 Manganese nitride, oxidizing ammonia by, 908.  
 Manganese oxide, 2948.  
 —, catalyst, 917, 1111, 1158, 1296.  
 Manganese peroxide, catalyst of, 1104.  
 Manganous sulfate, 1032.  
 Manganous sulfide, coloring celluloid by, 1896.  
 Manganese thiocyanate, dissolving cellulose by, 107, 108.  
*Manganic, see Manganese(ic).*  
*Manganus, see Manganese(ous).*  
 Manhattan spirits, 2409.  
 Manicure instrument, celluloid, 2718.  
 Manilla, ash in, 244.  
 Manilla cellulose, 244.  
 —, constants of, 244.  
 Manilla cellulose, lignin in, 244.  
 —, moisture in, 244.  
 —, pectic matter in, 244.  
 —, protein in, 244.  
 Manioc, starch from, 446, 466.  
*Manna sugar, see Ma-ni.*  
 Manna ash, 1863.  
 Mannan, 260, 352.  
 Manneotetrose, 7.  
 Manneo-tetrose-tetradecacetate, 185.  
 Mannino-tri-*q*se-hendekacetate, 185.  
 Mannitan, 1864.  
 Mannite, 74, 1862, 2975.  
 —, fulminating, 1862.  
 —, nitration cellulose and, 2256.  
 —, plastics containing, 1862.  
 —, occurrence, 1862.  
 —, oxidation of, 1863.  
 Mannite acetate, 185.  
 Mannite hexacetate, 184.  
 Mannitol, 404, 1097, 1668.  
 —, analysis, nitron for, 2316.  
 —, oxidation of, 1867.  
 Mannitol hexanitrate, 1865.  
 —, constitution of, 1865.  
 —, solubility of, 1866.  
 —, melting point of, 1866.  
 Mannitol lead nitrate, 1868.  
*Mannitol nitrate, see also Nitro-mannitol.*  
 Mannitol pentanitrate, manufacture, 1865, 1866.  
 Mannoheptit heptanitrate, 1848.  
*Mannol, see Manol.*  
 Manonitrometer, 2313.  
 Mannonose, 7.  
 Mannoctose, 7.  
 Mannose, 7, 186, 260, 281, 478, 1867.  
 —, mutarotation of, 1862.  
 —, tagua palm seeds containing, 1862.  
 —, vegetable ivory containing, 1862.  
 —, velocity constant of, 1862.  
 Mannose pentanitrate, 1847.  
*d* Mannose pentanitrate, 1869.  
 Mannose-hydrazone, 173.  
 Mannoso-cellulose, 387.  
 Manol, cellulose acetate solvent, 3040.  
 —, cellulose ester solvent, 2545.  
 Mantles, artificial, viscose for, 2594.  
 —, gas, cuprammonium cellulose, 78.  
 —, —, toughening, cellulose nitrate for, 2597.  
 —, —, incandescent, cellulose nitrate for, 2595, 2655.  
 —, incandescent, ramie for, 524.  
*Mantels, see also Filaments.*  
 Manure, artificial, niter cake in manufacturing, 798.

- Map, moulding, celluloid for, 2862.  
 —, support for, celluloid, 2908.  
 Maranham cotton, diameter of fibers, 508.  
 —, constants of, 505.  
 —, length of fibers, 509.  
*Maranta*, see *Arrow root*.  
 Marble, imitation, celluloid for, 2721.  
 Marcasite, 1043.  
 Margaric acid, 535.  
*Margarinic acid*, see *Margaric acid*.  
 Marion, pellicle of, 2886.  
 Marion's transparent tissue, 2886.  
 Marloid, 2670.  
 Marokene, 2607.  
 Marriotts stoneware bottle, 1229.  
*Marsh gas*, see *Methane*.  
 Marsh test, 1334.  
 Martingale rings, celluloid, 2686.  
 Mastic, 1739.  
 —, amyl acetate substitute, 2583.  
 —, cellulose ester solvent, 2541.  
 —, cellulose nitrate lacquer containing, 2593.  
 —, cellulose nitrate solvent, 2385.  
 —, dry plate preservative, 2829, 2830, 2834.  
 —, ethereal, 2782.  
 —, reducing inflammability of celluloid by, 2752.  
*Mastic*, see also *Resins*.  
 Mason's ore, 1048.  
 Massage appliances, celluloid, 2742.  
 Massage comb, celluloid, 2718.  
 Matagnite gelatine, 2973.  
 Match cords, 2981.  
 Matches, celluloid, 2697.  
 —, cellulose nitrate, 1582, 1886, 1887, 2983.  
 —, cellulose nitrate lacquers for, 2583.  
 —, friction, cellulose nitrate for, 1887.  
 Match heads, celluloid lacquers for, 2579.  
 Match heads, cellulose nitrate for, 2983.  
 Matezit pentanitate, 1848.  
 Mathematical instruments, celluloid in, 2695.  
 Matt paper, 2852.  
 Mattress, label, celluloid, 2701.  
 Maule's reaction, 356.  
 Mauritina, nitrating, 1876.  
 Mauveine, pseudo, 341.  
 Maximite, 2973.  
 Maxim powder, 2930.  
*M. D. cordile*, see *Cordile*, "M. L."  
 Measures, celluloid, 2916.  
 Measuring cups, celluloid, 2917.  
 Meconine, preserving collodion emulsions by, 2846.  
 Meconine acetate, preserving collodion emulsions by, 2846.  
 Medallions, celluloid, 2717.  
 Meerschäum, celluloid for imitating, 2720, 2721.  
 Meganite, 1810, 1876.  
 Megass, nitration of, 329.  
 Melainotype plates, 2849.  
 Melaleuca, nitrating, 1879.  
 Melaleuca, nitrating leaves of, 1800.  
*Melampyrit*, see also *Dulcit*.  
 Melampyrit nitrate, 1848.  
 Melanite, 2973.  
 Melczitose, 7.  
 Melhiose octacetate, 184.  
 Melland's powder, 2972.  
*Mellic acid*, see *Mellitic acid*.  
*Mellitose*, see *Raffinose*.  
 Mellophanic acid, 236.  
 Meloharp picks, celluloid, 2730.  
 MEK, 2397.  
 Membranoid, 2602.  
*Membranes, collodion*, see *Collodion membranes*.  
 Memorandum tablet, celluloid, 2717.  
 Memphis cotton, constants of, 505.  
*Menaphthoxylic acid*, see  *$\alpha$ -Naphthoic acid*.  
 Menouffieh cotton, constants of, 505.  
*Mentha crispata*, see *Peppermint*.  
*Mentha pulegium*, see *Peppermint*.  
 Menthol, camphor and, 2517.  
 Menthol  $\alpha$ -bromisovalerate, 2535.  
 Menthol ethoxyacetate, cellulose ester solvent, 2539.  
 Menthol ethoxychloracetate, cellulose ester solvent, 2539.  
 Menthol-maltoside, 185.  
 Menthol-maltoside heptacetate, 185.  
 Menthol methoxyacetate, cellulose ester solvent, 2539.  
 Menthol methoxychloracetate, cellulose ester solvent, 2539.  
 Menthyl acetate, cellulose ester solvent, 2538, 2549.  
 Menthyl borate, 2300.  
 Menthyl methyl salicylate, 2393.  
*Mercaptan*, see also *Ethyl mercaptan*.  
 —, formation from sulfite cellulose, 41.  
 Mercerizing, 214, 224.  
 —, apparatus for, 3065.  
 —, Bayer and Co. process, 230.  
 Mercerization, by-products from, 664.

- Mercerization, degree of, determining, 378, 379.  
 —, determining, 379.  
 Mercerization, sulfuric acid for, 229.  
 Mercerization, zinc chloride for, 229.  
*Mercerized cellulose, see Cellulose hydrate.*  
 Mercerizing, Lowe process, 228.  
 —, Meister, Lucius and Bruening process, 230.  
 —, potassium sulfide for, 229.  
 —, pressure, 230.  
 —, sodium sulfide for, 229.  
 —, sulfides for, 229.  
 Mercerizing, Tagliani process, 230.  
 —, Thomas and Prevost process, 228.  
 —, vacuum, 230.  
*Mercuric, see Mercury(ic).*  
*Mercurous, see Mercury(ous).*  
 Mercury, 2883.  
 —, decolorizing old collodion by, 2815.  
 —, determining, electrolytic, 2302.  
 —, determining in cellulose nitrate, 2302.  
 —, iodizer addition to, 2813.  
 —, lubricant of celluloid and, 2578.  
 —, restoring collodion by, 2815.  
*Mercury bichloride, see Mercury(ic) chloride.*  
 Mercury bromide, dissolving cellulose by, 109.  
 Mercury(ic) bromide, reducing inflammability of cellulose nitrate by, 1779.  
 Mercury(ic) chloride, 272.  
 —, cellulose nitrate and, 2793.  
 —, coloring celluloid by, 1896.  
 —, decolorizing old collodion by, 2815.  
 —, determining in, cellulose nitrate, 2302.  
 Mercuric chloride, dissolving cellulose by, 67.  
 Mercury(ic) chloride, effect on stability cellulose nitrate, 1711.  
 —, intensifying, by, 2824.  
 —, reducing inflammability of cellulose nitrate by, 1779.  
 —, restoring collodion by, 2815.  
 Mercury(ic) cyanide, iodizer addition to, 2813.  
 Mercuric chloride, use of, in soda process for wood pulp, 272.  
 Mercury(ic) chloride, treating silver image with, 2848.  
 Mercuric fulminate, 1818, 1850, 2930.  
 Mercury fulminate, detonation dry cellulose nitrate by, 1802.  
 Mercury fulminate, drying, 2153.  
 —, exploding cellulose nitrate by, 1606, 1796.  
 —, fuse containing, 1572.  
 —, transporting, 1929.  
*Mercury fulminate, see also Fulminate.*  
 Mercury(ic) iodide, cellulose nitrate and, 2793.  
 —, coloring celluloid by, 1896.  
 —, dissolving cellulose by formic acid and, 110.  
 Mercuric iodide, manufacture starch paste with, 442.  
 Mercury(ic) iodide, reducing inflammability of cellulose nitrate by, 1779.  
 Mercury(ic) oxide, action of, on cellulose, 113.  
 —, (red), cellulose nitrate and, 2793.  
 —, oxidizing acetylene by, 2996.  
 Mercury quartz lamp, action of cellulose under, 61.  
 Merton furnace, 1079.  
 Mesityl oxide, 424, 2390.  
 —, manufacture, 2399.  
*Mesitylinic acid (1,3,5), see Dimethyl benzoic acid (8,5).*  
 Mesocrythrite, 1857.  
*Mesoxalylurea, see Alloxan.*  
*Mesotartaric acid, see Tartaric acid (2).*  
 Mestrine, 2670, 2754.  
 Metaborates, 2528.  
 Metacellulose, 8.  
 Metacetone, 2385.  
*Metacetone, see also Diethylketone.*  
*Metacetic acid, see Propionic acid.*  
*Meta-compounds, see m-Compounds.*  
*Metaformaldehyde, see Trioxymethylene.*  
 Meta-gelatin, dry plate preservative, 2830.  
 Metal, action of cellulose nitrate on, 1636.  
 —, action of nitric acid on, 951.  
 —, action of sulfuric acid on, 1319.  
 —, coating, celluloid lacquers for, 2579.  
 —, incrusting on celluloid, 2690.  
 —, protecting, acetone-shellac for, 2400.  
 —, soldering of, cellulose tubes for, 335.  
 Metal gelatinate, 1775.  
 Metal hooks, celluloid coated, 2711.  
*Metallic fabrics, see Fabrics, metallized.*  
 Metalization, cellulose nitrate for yarns, 2645.

- Metallized lace, cellulose nitrate for, 2599.  
 Metalloidion, 1780.  
 Metalloidium, 1780.  
 Metalloids, contact poisons, 907.  
 Metallotype, 2862.  
 Metallür, 1322.  
 Metal work, preserving, cellulose nitrate for, 2574.  
*Melanitrophenol*, see *Nitrophenol (meta)*.  
*Melanilic acid*, see *Amino-benzene-sulfonic acid(o)*.  
*Metaphenylenediamine*, see *m-Phenylenediamine*.  
*Metaphosphoric acid*, see *Phosphoric acid*.  
 Metasilicates, 2528.  
 Methane, 41, 344.  
 —, cellulose yielding, 15  
 —, cellulose nitrate, explosion, gases, in, 1599.  
 —, hydrogen in, estimation of, 339.  
*Methane oxide*, see *Formamide*.  
*Methane carboxylic acid*, see *Acetic acid*.  
*Methanedicarbonic acid*, see *Malonic acid*.  
 Methanol, 2409.  
*Metheneprotocatechuic acid*, see *Piperonylic acid*.  
*Methenyl tribromide*, see *Bromoform*.  
*Methenyltriethyl ether*, see *Ethyl o-formale*.  
 Methose, 424.  
 Methoxyl, 353.  
 Methoxyacetylborneol, cellulose ester solvent, 2539.  
 Methoxyacetylmenthol, cellulose ester solvent, 2539.  
 Methoxyacetylsantalol, cellulose ester solvent, 2539.  
*p-Methoxy-acet-aminophenol*, see *Methacetine*.  
*p-Methoxybenzaldehyde*, see *Anisaldehyde*.  
*p-Methoxypropenylbenzene*, see *Anethol*.  
 Methoxyl, estimation of, 251, 368, 369.  
*Methoxy salicylate*, see *Mesotan*.  
 6-Methoxy-m-tolylethyl alcohol, 2388.  
*Methoxine*, see *Antipyrine*.  
 Methyl acetate, 1736, 1885, 2278, 2499.  
 —, cellulose acetate solvent, 3032, 3034, 3039.  
 —, cellulose nitrate solvent, 2394.  
 Methyl acetate, cellulose nitrate solvent of acetone and, 2394.  
 —, cellulose nitrate solvent of amyl acetate and, 2386.  
 —, manufacture, 2500.  
 —, solubility cellulose nitrate, 1584.  
 —, viscosity cellulose acetate solutions of, 1739.  
 —, viscosity cellulose nitrate in, 1737.  
*Methyl acetic acid*, see *Propionic acid*.  
 Methylacetamide, cellulose ester solvent, 2545, 2552.  
*Methyl acetamid*, see also *Exalgine*.  
 Methylacetate, cellulose acetate solvent, 3032.  
 Methyl acetone, 2401.  
 —, cellulose acetate solvent, 3031, 3032.  
*Methylactone*, see also *Methylethylketone*.  
*Methyl acetylene*, see *Allylene*.  
 Methyl acetyl, 2391.  
 Methyl acetylsalicylate, 2388.  
 —, cellulose ester solvent, 2535.  
*p-Methyl adipate*, cellulose ester solvent, 2536, 2543.  
 Methylal, 395.  
 Methyl alcohol, 255, 2382, 2402.  
 —, analysis, 2403, 2409.  
 —, anisole, 1736, 2278.  
 —, cellulose nitrate in, viscosity, 1737.  
 —, cellulose acetate solvent, 3025.  
 —, cellulose nitrate solvent of nitroglycerol and, 2385.  
 —, colloidizing cellulose nitrate by, 1632.  
 —, detection, 2409.  
 —, ether, cellulose nitrate solvent, 1736.  
 —, ethyl ether, viscosity cellulose nitrate in, 1737.  
 —, extracting resin from wood by, 289.  
 —, manufacture of, 255, 261.  
 —, masking diphenylamine test by, 2360.  
 —, methyl ether, 2388.  
 —, physical constants, 2403.  
 —, purifying cellulose with, 28.  
 —, purifying cotton by, 562.  
 —, solubility acetic acid in, 2499.  
 —, specific conductivity, 2409.  
 —, toxicity of, 2411.  
 —, viscosity cellulose nitrate in, 1737.  
*o-Methyl-amido-phenol*, see *o-Anisidine*.



- Methylamine, 2529.  
*mono*-Methylamine, dissolving cellulose by copper and, 72.  
 Methylamine, cellulose acetate solvent, 3037.  
 —, paint remover containing, 2567.  
 Methylamine bisulfate, acetating cellulose in presence of, 3010.  
 Methylamine sulfate, 3060.  
 —, acetating cellulose in presence of, 3010.  
 Methylamyl ketone, 2387, 2397, 2401.  
 Methyl-*n*-amyl ketone, 2401.  
 —, source, 2401.  
 Methyl anilid, cellulose ester solvent, 2540.  
 Methyl anilid phosphate, cellulose ester solvent, 2540.  
 Methylaniline, cellulose ester solvent, 2539.  
 —, cellulose nitrate gelatinizer, 1885.  
 Methylated cellulose, 16, 38.  
 Methylated cellulose, *see also* Cellulose, *methylated*.  
 Methylated ether, 2805.  
 Methylated spirit, 2805.  
 —, celluloid lacquer containing, 2578.  
 Methylated spirit, *see also* Methyl alcohol.  
 Methylation, *see* Cellulose, *methylation*.  
 Methyl azaelate, cellulose ester solvent, 2543.  
 Methylbenzene, *see* Toluene.  
 unsym-Methylbenzene (*tri*), *see* Cumene, *pseudo*-.  
 Methyl benzoate, 2387.  
 —, cellulose acetate solvent, 3035.  
 Methylbenzoyltrichloraniline, cellulose acetate solvent, 3038.  
 Methyl benzyl ether, cellulose ester solvent, 2543.  
 Methyl borate, reducing inflammability of cellulose nitrate by, 5786.  
 Methyl bromobenzoate, 2387.  
 Methyl bromocitrate, 2387.  
 Methyl bromohippurate, 2387.  
 Methyl bromolactate, 2387.  
 Methyl bromomesitylenate, 2387.  
 Methyl bromonitrobenzoate, 2387.  
 Methyl bromonitrocitrate, 2387.  
 Methyl bromonitrohippurate, 2387.  
 Methyl bromonitrolactate, 2387.  
 Methyl bromonitromesitylenate, 2387.  
 Methyl bromonitrooxalate, 2387.  
 Methyl bromonitrosalicylate, 2387.  
 Methyl bromonitrophthalate, 2387.  
 Methyl bromonitrosuccinate, 2387.  
 Methyl bromonitrotartrate, 2387.  
 Methyl bromonitrotoluene, 2387.  
 Methyl bromoxalate, 2387.  
 Methyl bromophthalate, 2387.  
 Methyl bromosalicylate, 2387.  
 Methyl bromosuccinate, 2387.  
 Methyl bromotartrate, 2387.  
 Methyl bromotoluene, 2387.  
 Methylbulenylketone, *see* Mesityl oxide.  
 Methylisobutyl ether, 2385.  
 Methylbutyl ketone, 2387, 2401.  
 Methylisobutyl oxide, *see* Methylisobutyl ether.  
 Methyl butyrate, 2507.  
 Methyl butyrate, cellulose nitrate solvent, 2394.  
 —, solubility, 2489.  
 Methyl caproate, cellulose nitrate solvent, 2394.  
 Methyl carbamate, cellulose ester solvent, 2536.  
 Methyl carbanilate, cellulose ester solvent, 2537.  
 Methyl carbonate, cellulose ester solvent, 2536.  
 Methyl carhylamine, *see* Methyl isocyanide.  
 Methyl (*mono*) catechol, *see* Guaiacol.  
 Methyl cellulose, *see also* Cellulose *methylated*.  
 Methylcellulose acetate, 38.  
 Methyl chloracetate, cellulose acetate solvent, 3034.  
 Methyl chloride, 423, 2388, 2393.  
 Methyl chlornitrobenzoate, 2387.  
 Methyl chlornitrocitrate, 2387.  
 Methyl chlornitrohippurate, 2387.  
 Methyl chlornitrolactate, 2387.  
 Methyl chlornitromesitylenate, 2387.  
 Methyl chlornitrooxalate, 2387.  
 Methyl chlornitrophthalate, 2387.  
 Methyl chlornitrosalicylate, 2387.  
 Methyl chlornitrosuccinate, 2387.  
 Methyl chlornitrotartrate, 2387.  
 Methyl chlorobenzoate, 2387.  
 Methyl chlorocitrate, 2387.  
 Methyl chlorohippurate, 2387.  
 Methyl chlorolactate, 2387.  
 Methyl chloromesitylenate, 2387.  
 Methyl chlornitroate, 2387.  
 Methyl chloroxalate, 2387.  
 Methyl chlorophthalate, 2387.  
 Methyl chlorosalicylate, 2387.  
 Methyl chlorosuccinate, 2387.  
 Methyl chlorotartrate, 2387.  
 Methyl chlortoluene, 2387.  
 Methylcinnamylketone, *see* Benzylidene acetone.

- Methyl citrate, 2387.  
*Methylcrotonic acid*, see *Liglic. acid*.  
 Methylcyclohexanol, cellulose ester solvent, 2548.  
*b*-Methylcyclohexanol formate, cellulose ester solvent, 2548.  
*b*-Methylcyclohexanol acetate, cellulose ester solvent, 2548.  
*l*-Methylcyclohexanone, cellulose ester solvent, 2548, 3028.  
 Methylcyclohexyl carboxylic acid, cellulose ester solvent, 2548.  
 Methyl-3,4-diamidobenzoic acid, cellulose ester solvent, 2544.  
 Methyl dicresyl phosphate, cellulose ester solvent, 2541.  
 Methyl dinaphthyl phosphate, cellulose ester solvent, 2541.  
 Methyl diphenyl phosphate, cellulose ester solvent, 2541.  
 Methyl diphenyl urea, cellulose ester solvent, 2546.  
 Methylen blue, 154, 164, 170, 552, 1661.  
 —, dyeing cellulose acetate with, 3055.  
 —, dyeing hydrocellulose with, 139.  
 Methylene chlorhydrin, cellulose acetate solvent, 3034.  
*Methylenedimethylate*, see *Methylal*.  
*Methylenedimethyl ether*, see *Methylal*.  
 Methylenethylenic glycerol, cellulose ester solvent, 2543.  
 Methylene-glycerol, cellulose ester solvent, 2543.  
 Methylene sulfate, acetating cellulose in presence of, 3012.  
 Methylethenyltrichloramidine, cellulose ester solvent, 2544, 2547.  
 Methyl ether, 2383, 2797.  
 —, methyl alcohol, cellulose nitrate solvent, 2388.  
*Methyl ether*, see also *Dimethyl ether*.  
*Methylethyl benzene*, see *Ethyl toluene*.  
 Methylethylcarbincarbinol acetate, 2486.  
*Methyl ethyl carbinol*, see *Butyl alcohol* (sec.).  
*Methylethylene (tri)*, see *Pental*.  
 Methylethyl ether, 2385.  
 Methylethyl *o*-phthalate, 2393.  
*b*-Methylethyl propionic acid, see *Caproic acid*.  
*q*-Methyl-3-ethyl pyridine, see *Colidine*.  
 Methylethyl ketone, 2387, 2397, 2401.  
 Methylethyl ketone-acetone, density of system, 2399.  
 Methylethyl ketone, celluloid lacquer containing, 2578.  
 Methyl ethyl ketone, manufacture, 2396.  
 —, manufacture from *n*-butyl alcohol, 2401.  
 —, manufacture from calignate, 276.  
 Methyl formate, 1885, 2497.  
 —, cellulose acetate solvent, 3034.  
 Methylfurfural, 19, 249, 265.  
 —, brom, 15, 185.  
 —, chlor, 185.  
 Methylfurfural phloroglucide, 367, 368.  
*Methylfurfuraldehyde*, see *Methylfurfural*.  
 2,5-di-Methylfurfuran, 407.  
 Methylglycerolaldehyde, 6.  
 $\beta$ -Methyl-glucose-tetracetate, 184.  
 Methyl glycerol-chlorhydrin, cellulose acetate solvent, 3034.  
*Methyl glycine*, see *Sarcosine*.  
 Methylglucoside tetranitrate, 1847.  
*Methylglycocyaniline*, see *Creatinine*.  
*Methylglycocyanine*, see *Creatine*.  
*Methylglyoxalidine*, see *Lysidine*.  
 Methylheptenon, reaction with ligno cellulose, 262.  
 Methylheptyl ketone, 2397.  
*Methylhexylketone*, see *Capryl aldehyde*.  
 Methyl hippurate, 2387.  
*Methyl hydrate*, see *Methyl alcohol*.  
 Methylhydroxypyrrone, 249.  
 $\alpha$ - $\alpha'$ -Methylin dinitrate, 2394.  
*Methyl indol*, see *Skatol*.  
 Methyl iodide, 353, 368, 369.  
 —, estimating, 370.  
 Methylketobutanol, cellulose ester solvent, 2042.  
 Methyl lactate, 2387.  
 Methyl lactate, cellulose acetate solvent, 3036.  
 Methyl linoleate, cellulose nitrate solvent, 2391.  
 $\beta$ -Methylmaltoside heptacetate, 184.  
 Methyl-*d*-mannoside tetranitrate, 1847.  
 Methyl menthyl salicylate, 2393.  
 Methyl mesitylenate, 2387.  
*Methyl mustard oil*, see *Methyl thiocarbamide*.  
 Methyl myristate, cellulose acetate solvent, 3036.  
 Methylnaphthalene, 2963, 2963.  
 Methylnaphthylamine, cellulose ester solvent, 2539.  
 Methylnaphthyl ether, cellulose ester,

- solvent, 2543.  
 Methyl-naphthyl ketone, cellulose ester solvent, 2542.  
 Methyl nitrate, 1637, 2383, 2387, 2969.  
 Methyl nitrobenzoate, 2387.  
 Methyl nitrocitrate, 2387.  
 Methyl nitrohippurate, 2387.  
 Methyl nitrolactate, 2387.  
 Methyl nitromesitylenate, 2387.  
 Methyl nitrooxalate, 2387.  
 Methyl nitrophthalate, 2387.  
 Methyl nitrosalicylate, 2387.  
 Methyl nitrosuccinate, 2387.  
 Methyl nitrotartrate, 2387.  
 Methyl nitrotoluate, 2387.  
 Methyl oleate, cellulose nitrate solvent, 2391, 2536.  
 Methyl orange, 1327.  
 Methyl oxalate, cellulose acetate solvent, 3036.  
 —, cellulose ester solvent, 2387, 2536.  
 Methyl oxamate, cellulose ester solvent, 2536.  
 Methyl oxanilate, cellulose ester solvent, 2540.  
 Methyl-*p*-oxy benzaldehyde, *see* Anisic aldehyde.  
 Methyloxynaphthyl ketone, cellulose ester solvent, 2542.  
*p*-Methyloxyphenyl-ethyl alcohol, 2388.  
 Methyl palmitate, cellulose nitrate solvent, 2391, 2536.  
 Methyl palmitate, paint remover containing, 2565.  
 Methylpentosan, 257, 337, 368.  
 —, determining, 367.  
 Methyl pentachloranilid, cellulose ester solvent, 2545.  
 Methylpentose, 7, 368.  
 Methyl pimelate, cellulose ester solvent, 2543.  
 Methyl-phenol, *see* Cresol.  
 Methylphenylacetamide, *see* Exalgine.  
 $\beta$ -Methyl-5-phenyl-4,6-dicarbo-ethyl-keto-R-hexene, 2539.  
 (di)Methyl-*p*-phenylenediamine, reaction with lignocellulose, 262.  
 Methyl phenyl ether, *see also* Anisol  
 Methylphenyl ether, cellulose acetate solvent, 3028.  
 Methylphenyl urea, cellulose ester solvent, 2546.  
 Methylphenyl urethane, cellulose ester solvent, 2546.  
 Methyl phthalate, 2387.  
 Methyl phthalate, cellulose acetate solvent, 3036, 3043.  
 Methyl phosphate, cellulose ester solvent, 2540.  
 Methyl-*p*-propenyl-phenol, *see* Anethol.  
 Methyl propionate, cellulose nitrate solvent, 2394, 2505.  
 Methylpropyl ketone, 2387, 2397, 2401.  
*p*-Methylpropylbenzene, *see* Cymene.  
 Methyl-*n*-propyl carbinol, *see* Amyl alcohol.  
 Methyl-iso-propyl ketone, 2401.  
 Methyl-*n*-propylphenol, *see* Thymol.  
 Methyl propylphenyl hexahydride, *see* Menthyl.  
 Methylprotocatechuic acid, *see* Vanillic acid.  
 Methylprotocatechuic aldehyde, *see* Vanillin.  
 $\alpha$ -Methylpyridine, *see* Picoline.  
 Methylquinoline, *see* Lepidine.  
 $\alpha$ -Methyl-quinoline, *see* Quinaldine.  
 Methyl red, 2318.  
 Methylresorcin, *see* Orcin.  
 Methyl ricinoleate, cellulose nitrate solvent, 2391.  
 Methyl salicylate, 2387, 2491.  
 Methyl sebacate, cellulose ester solvent, 2536, 2443.  
 Methyl silicate, reducing inflammability of cellulose nitrate by, 1787, 1789.  
 Methyl stearate, cellulose nitrate solvent, 2391, 2536.  
 Methylstyrylketone, *see* Benzylidene acetone.  
 Methylsuccinic acid, *see* Pyrotartaric acid.  
 Methyl suberate, cellulose ester solvent, 2543.  
 Methyl succinate, 2387.  
 Methyl sulfate, 3061.  
 —, alkylating cellulose with, 24.  
 Methyl sulfuric acid, *see* Methyl hydrogen sulfate.  
 Methyl tartrate, 2387.  
 Methyl tetrachloranilid, cellulose ester solvent, 2545.  
 Methyltheobromine, *see* Caffeine.  
 Methyl isothiocyanate, *see* Methyl mustard oil.  
 Methyl thiocyanate, *see* Methyl sulfo-cyanate.  
 Methyl toluate, 2387.  
 Methyl-*o*-toluylenediamine, cellulose acetate solvent, 3040.  
 Methyl-*o*-tolylethylcarbamate, 2278.  
 Methyltrichloranilid, cellulose ester solvent, 2545.  
 Methyltrihydroxyanthraquinone, *see*

- Emulsion.*  
 Methyltriase, 6.  
 Methylurea nitrate, cellulose ester solvent, 2552.  
 Methyluramine, see *Methylguanidine*.  
 Methylurethane, see *Urethylene*.  
 Methyl valerianate, 2508.  
 Methyl valerianate, see *Methyl valerate*.  
 Methyl valerate, cellulose nitrate solvent, 2394.  
 Methylvaleryl ether, 2401.  
 Methylvaleryl ketone, 2401.  
 Methyl violet, 166.  
 —, dyeing cellulose acetate with, 3055.  
 Methyl violet paper, 2346, 2371.  
 Metol, intensifying with, 2823.  
 Meyer's chambers, 1215.  
 Mica, 955.  
 —, artificial pearl with cellulose nitrate and, 2588.  
 —, bronzing liquid containing, 2583.  
 —, cellulose acetate with, 3054.  
 —, photo film of, 2887.  
 —, plastic of cellulose nitrate and, 1634.  
 —, polarization of, 1769.  
 Micaroid, 2670.  
 Michel process, 1033.  
 Michler's ketone, see *Tetramethyldiamino-benzophenone*.  
 Micrococcus prodigiosus, 1802.  
 Microcosmic salt, reducing inflammability cellulose nitrate by, 1788.  
 Microcosmic salt, see also *Sodium ammonium hydrogen phosphate*.  
 Microcotton, 2780.  
 Mihr method (acid titration), 1505.  
 Mild-steel, action sulfuric acid on, 1320.  
 Milk, dry plate preservative, 2828, 2834.  
 Milk sugar, 74.  
 Milk sugar, see also *Lactose*.  
 Milk weed, nitrating, 1874.  
 Miller duplex beater, 2084, 2088.  
 Millon's reagent, 1881.  
 Mills-Packard lead chamber, 1214.  
 Milne patent refiner, 2092.  
 Mineral jelly, 2950, 2951, 2975, 2976.  
 Mineral jelly, see also *Vaseline*.  
 Mineral oils, see also *Paraffin, Vaseline, etc.*  
 Miner's Friend powder, 1810.  
 Mineral constituents, determining in cellulose nitrate, 2296.  
 Mines, explosive, transporting, 1620.  
 Mining cartridge, cellulose nitrate containing, 1629.  
 Mining cartridge, see also *Cartridge*.  
 Mirror, ammonium silvering composition, 2573.  
 —, protecting surface of, celluloid lacquers for, 2579.  
 —, silver, cellulose nitrate for protecting, 1762.  
 Mirror back, celluloid, 2711, 2714.  
 Mission leather, see *Leather, mission*.  
 Mississippi cotton, length of fibers, 509.  
 Mitafi cotton, constants of, 505.  
 Mixed acid, 1403.  
 —, absorption towers, 1484.  
 —, acid blenders, 1477.  
 —, acidity in, determining, 1504, 1509.  
 —, action of water on, 1406.  
 —, analysis, 1504.  
 —, analysis, English practice, 1511.  
 —, —, nitrous acid, 1515.  
 —, —, preparation of sample, 1512.  
 —, —, sulfuric acid, 1516, 1517.  
 —, —, total acidity, 1512.  
 —, —, total nitrogen acids, 1513, 1516.  
 —, —, water in, 1517.  
 —, blenders, stirring apparatus, 1477.  
 —, blending tanks, 1477.  
 —, blowing, 1481.  
 —, boiling point, maximum, 1410.  
 —, calculation, 1485.  
 —, condensing, du Pont apparatus, 1427.  
 —, cooling, 1481.  
 —, density, 1518.  
 —, dip rods, 1484.  
 —, electric conductivity, 1404, 1405.  
 —, English practice, 1474.  
 —, freezing points of, 1518.  
 —, fume elimination, 1484.  
 —, lead acid lines, 1483.  
 —, maximum boiling point of, 1410.  
 —, mixing house, 1476.  
 —, nitrating capacity of, 1684.  
 —, nitrogen oxides in, 1414.  
 —, nitrogen total, determining, 1510.  
 —, pipe lines, 1482, 1483.  
 —, plug cocks, 1482, 1483.  
 —, poisoning in, 1485.  
 —, precipitating, 1393.  
 —, preliminary mixer, 1474.  
 —, process manipulation, 1479.  
 —, production of, 1479.  
 —, pumps for, 1483.  
 —, recovery of, 1412.  
 —, sampling, 1484, 1509.

- Mixed acid, specifications for, 1411.  
 —, specific gravity of, 1404, 1512.  
 —, storage tanks, 1478.  
 —, storage, Mowbray method, 1517.  
 —, sulfuric acid in, estimating, 1507, 1511.  
 —, thermal properties of, 1410.  
 —, total acidity, Coffeti-Maderna method, 1508.  
 —, total acidity in, determining, 1505.  
 —, —, Finch method, 1507.  
 —, —, Lunge and Berl method, 1506.  
 —, transporting, Jensen method, 1517.  
 —, vapor pressure, 1404, 1405.  
 —, ventilation, 1485.  
 —, vessels for, calibration, 1484.  
 M. N. smokeless powder, 2973.  
 Mobile cotton, constants of, 505.  
 Moddite, 2953.  
*Modification sulfurique*, 126.  
 Modified starch, *see* Starch, soluble.  
 Moisture, determination of, in brimstone, 1037.  
 —, determination in cellulose, 358.  
 —, determining in cellulose nitrate, 2274.  
 —, hygroscopic, 129.  
 Molasses, dry plate preservative, 2830.  
 —, nitrated, 1634, 1855.  
 —, de-saccharinated, nitrating, 1855.  
 Molybdenum, catalyst, 918.  
 —, oxidizing ammonia by, 903, 905.  
 —, transporting nitric acid in, 956.  
 Molybdenum chloride, 909.  
 Molybdenum nitride, oxidizing ammonia by, 903.  
 —, preparing, 909.  
 Molybdic acid, catalytic action of, 1158.  
 —, oxidizing ammonia by, 903.  
 Monachite, 2975.  
 Monarkite, 2975.  
 — Monel metal, properties, 957, 958.  
 Monoacetic cellulose, *see* Cellulose, monoacetate.  
 Monoacetin, 2276.  
 —, cellulose acetate solvent, 3033.  
 —, cellulose nitrate solvent, 2384, 2537.  
 Monoacetin, *see also* Glyceryl monoacetate.  
 Monoacetochlorhydrin, cellulose ester solvent, 2543.  
 Monoacetylaniline, cellulose acetate solvent, 3026.  
 Monogammonium citrate, nitro-starch stabilizer, 1828.  
 Monobromanisipyrine, *see* Bromopyrine.  
 Monobromethane, *see* Ethyl bromide.  
 Monobromopropylene (g), *see* Allyl bromide.  
 Monochloracetic acid, acetating cellulose in presence of, 3011.  
 Monochlorbenzol, *see* Monochlorbenzene.  
 Monochlorethylidene dichloride, *see* Methyl chloroform.  
 Monochlorobenzylidene diacetate, cellulose ester solvent, 2539.  
 Monochlorobenzyl alcohol, *see* Ethylene chlorohydrin.  
 Monochlorhydrin, 2391, 2393.  
 —, cellulose acetate solvent, 3033.  
 Monochlorhydrin monoacetate, cellulose acetate solvent, 3033.  
 Monochlorhydrin diacetate, cellulose acetate solvent, 3033.  
 Monochloronaphthalene, cellulose ester solvent, 2536.  
 —, cellulose acetate solvent, 3032.  
 Monochloropropylene (g), *see* Allyl chloride.  
 Monoethyl sulfate, *see* Ethylsulfuric acid.  
 Monoformin, *see also* Glyceryl monoformate.  
 —, cellulose acetate solvent, 3033.  
 Monohydrate, manufacture of, 1382.  
 Monohydrated valerianic acid, *see* Iso-valerianic acid.  
 Monoiodoethane, *see* Ethyl iodide.  
 Monomethylcatechol, *see* Guaiacol.  
 Mononitrobenzene, 1868.  
 —, cellulose nitrate solvent, 2384.  
 Mononitrobenzenoid hydrocarbons, cellulose nitrate solvents, 2391.  
 Mononitrocellulose, 1641.  
 Mononitrodiacetin, 2384.  
 Mononitrocellulose, *see also* Cellulose mononitrate.  
 Mononitromonochlorhydrin, cellulose ester solvent, 2543.  
 Mononitronaphthalene, 1784, 1825, 1836, 2253.  
 —, blasting fuse of, 1849.  
 Mononitrophenol, 2965.  
 Mononitrotoluene, cellulose nitrate solvent, 2384.  
 9-10-Mono-oxypheanthrylamine, 2337.  
 Monoplane wings, *see* Wings, monoplane.  
 Monosaccharides, 6.  
 Monosaccharoses, 6.

- Monoses**, 6, 1664. •  
**Monoses**, action alkali on, 21.  
*di*-9,10-Monoxypheanthrylamine, testing nitric acid by, 963.  
**Montejus**, 1274.  
**Mordant**, viscose as, 3078. •  
**Mordants**, action of, on cellulose, 61.  
 —, nitric acid in manufacture of, 946.  
**Moreening**, producing effect of, 233.  
**Moritz chambers**, 1212, 1213.  
**Moroccoline**, 2605.  
**Morphine**, cellulose, nitrate and, 2794.  
 —, decolorizing old collodion by, 2815.  
 —, dry plate preservative, 2828.  
 —, preserving collodion emulsions by tannin and, 2846.  
 —, restoring collodion by, 2815.  
**Morphine acetate**, 2820.  
 —, dry plate preservative, 2828.  
 —, iodizer addition to, 2812.  
 —, preserving collodion emulsions by, 2846.  
**Morphine hydrochlorate**, dry plate preservative, 2833.  
*Morphine methyl ether*, see *Codeine*.  
**Mosaic**, celluloid for imitating, 2722.  
**Moss**, nitrating, 1877.  
*Moss starch*, see *Lichenin*.  
**Mother-of-pea**, 2572, 2588. •  
**Motor**, explosion, nitrous oxide as fuel in, 695.  
**Motor fuels**, amyl acetate, for 2496.  
**Motorite**, 2973.  
**Moulding**, cellulose nitrate for, 2597. •  
**Moulds**, action on cellulose nitrate, 1802.  
 —, cellulose nitrate containing, 1710.  
 —, formation starch by, 404.  
 —, growth of, on cellulose nitrate, 1710.  
**Moving pictures**, 2796, 2884.  
**M. powder**, 2976.  
**Mucic acid**, 1863.  
**Mucic acid tetracetate**, 184.  
**Mucilage**, formation from cellulosic bodies, 49.  
*Mucor boudard*, 340, 418.  
**Mud guards**, celluloid, 2658, 2698.  
**Müllerite**, 2973. •  
**Mulberry**, starch from, 446.  
**Mulberry bark**, nitrated, 2627.  
**Mulberry tree bark**, nitrating, 1878.  
**Multiple yellow**, 2875.  
**Munroe-Jewell powder**, 2969.  
*Murexale*, see *Uramil*.  
*Muriate of tin*, see *Tin chloride*. • •  
*Muriatic acid*, see *Hydrochloric acid*.
- Murexide**, 2823.  
**Music clips**, celluloid, 2730.  
**Musical instruments**, celluloid in manufacture of, 2730.  
**Musinees**, nitrating, 1870.  
*Musk "Baur,"* see *Musk, artificial*.  
**Mustard oil**, 442.  
**Mustard oils**, treating viscose with, 3074.  
**Mustard seeds**, dry plate preservative, 2833.  
**Muzzle fire**, diminishing, urea oxalate for, 2984. •  
*Mycetozoa*, 1741.  
**Myucose octonitrate**, 1848.
- Na fen fe**, 246.  
**Nail brush**, celluloid, 2713.  
**Nail polisher**, celluloid, 2713.  
**Napunti**, 246. •  
**Naphtha**, nitrated, cellulose nitrate solvent, 2390, 2393.  
 —, nitrating, 1871.  
*Naphtha*, see also *Benzine*.  
*Naphthacetyl*, see *Acetaminonaphthol* (4, 1).  
**Naphthalene**, camphor with, 2517.  
 —, cellulose acetate solvent, 3028.  
 —, cellulose ester solvent, 2539.  
 —, chlorinated, cellulose acetate solvent, 3032.  
 —, paint remover containing, 2566.  
**Naphthalene benzylnitrochloride**, cellulose ester solvent, 2540.  
**Naphthalene bromide**, cellulose ester solvent, 2540.  
*Naphthalene- $\alpha$ -carboxylic acid*, see  *$\alpha$ -Naphthoic acid*.  
**Naphthalene chloride**, cellulose ester solvent, 2540.  
**Naphthalene nitroboronide**, cellulose ester solvent, 2540.  
**Naphthalene nitrochloride**, cellulose ester solvent, 2540.  
**Naphthalene sulfonates**, 2529. •  
**Naphthalene sulfonic acid**, 249, 250. •  
**Naphthalene trichloride**, cellulose ester solvent, 2539.  
*Naphthalic acid*, see *Phthalic acid*.  
**Naphthalin red**, 2871. •  
*Naphthalol*, see *Betol*.  
**Naphthene**, 2469, 2952.  
**Naphthenes**, nitrated, 2952.  
**Naphthionic acid**, dyeing cellulose acetate with, 3055.  
*Naphthionic acid*, see also  *$\alpha$ -Naphthylamine-4-sulfonic acid*.  
**Naphthol**, action on lignocellulose, 295.

- Naphthol, cellulose acetate softener, 3042.  
 —, cellulose ester solvent, 2539, 2547, 3027.  
 —, cellulose nitrate solvent, 2384.  
 —, reaction lignocellulose with, 262, 263.  
 —, Naphthol and potassium chlorate, reaction with lignocellulose, 262.  
 Naphthol yellow, 2875.  
 —, Naphthol, 86, 263.  
 —, Naphthol, dyeing cellulose acetate by, 3055.  
 —, Naphtholamyl ether, cellulose ester solvent, 2537, 2541.  
 —, Naphthol benzoate, cellulose acetate solvent, 3035.  
 Isonaphthoic acid, *see* *b*-Naphthoic acid.  
 —,  $\alpha$ -Naphtholcarboxylic acid, *see*  $\alpha$ -Oxy-naphthoic acid.  
 —,  $\beta$ -Naphthol-carboxylic acid, *see*  $\beta$ -Oxy-naphthoic acid.  
 Naphthol phosphate, 2387.  
 —, Naphthol salicylate, *see* Betol.  
 Naphtholsalol, *see*  $\beta$ -Naphthyl salicylate.  
 Naphtholsalol, *see* Betol.  
 Naphthyl acetate, cellulose ester solvent, 2538, 3036.  
 Naphthylamine, 66, 1334, 2530.  
 —,  $\beta$ -Naphthylamine, cellulose acetate solvent, 3040.  
 Naphthylamine, determining stability cellulose nitrate by, 2335, 2337.  
 —,  $\alpha$ -Naphthylamine, dyeing cellulose acetate by, 3055.  
 —,  $\beta$ -Naphthylamine, dyeing cellulose acetate by, 3055.  
 Naphthylamine, reaction with lignocellulose, 262.  
 Naphthylamine bordeaux, dyeing cellulose acetate with, 3055.  
 —,  $\beta$ -Naphthylamined hydrocarvone, cellulose acetate solvent, 3040.  
 —, Naphthylamine hydrochloride, 264.  
 —,  $\beta$ -Naphthylamine lignalsulfonate, 264.  
 Naphthyl anilid, cellulose ester solvent, 2540.  
 Naphthyl anilid phosphate, cellulose ester solvent, 2540.  
 Naphthyl benzoate, cellulose ester solvent, 2538.  
 Naphthyl carbonate, cellulose ester solvent, 2540.  
 —, reducing inflammability cellulose nitrate by, 1785.  
 Naphthyl cyanide, *see* Naphthomiride.  
 Naphthyl-dihydrocarvon, cellulose ester solvent, 2549.  
 Naphthylene, *see* Diamino-naphthalene.  
 Naphthyl ether, cellulose acetate solvent, 3028, 3033.  
 Naphthyl ether, cellulose ester solvent, 2544.  
 Naphthylethyl ether, 2385.  
 —,  $\alpha$ -Naphthylglycin-1-naphthyl-amine, 4-sulfonic acid, 2871.  
 Naphthyl-magnesium halogen compounds, cellulose acetate solvent, 3030.  
 Naphthylphenyl ether, cellulose ester solvent, 2543.  
 —,  $\beta$ -Naphthyl phthalate, cellulose acetate solvent, 3043.  
 Naphthyl phosphate, cellulose ester solvent, 2540.  
 Naphthyl phosphate, reducing inflammability cellulose nitrate by, 1785.  
 Naphthyl propionate, cellulose ester solvent, 2538.  
 Naphthyl sulfamide, 2530.  
 Naphthyl thiophosphate, cellulose ester solvent, 2540.  
 Narceine, preserving collodion emulsions by, 2846.  
 Narcotine, 2871.  
 —, Narcotine acetate, preserving collodion emulsions by, 2846.  
 Narki metal, 779, 1321, 1432.  
 Nassim, 246.  
 Natal cotton, length of fibers, 509.  
 Naval smokeless powder, 1897.  
 Necklace, celluloid, 2712.  
 Necklace fastening, celluloid, 2712.  
 Necktie adjusters, celluloid, 2708.  
 Necktie retainers, celluloid, 2708.  
 Needle, flexible, celluloid, 2711.  
 Needles, phonograph reproducing, celluloid, 2733.  
 Negative cotton, 1693.  
 Negative reproduction, 2865.  
 Negatives, celluloid, 2908.  
 —, collodion, micro-structure of, 2912.  
 —, pellicular, 2890.  
 —, texture of, 2912.  
 Neonol, 2976.  
 Nerolin, *see* Methyl naphthylether (b).  
 Nettle, artificial filaments from, 336.  
 Neutralsen, 1368.  
 Neutral iron, 956.  
 New E. C. powder, 2976.  
 New Schultze powder, 2971.  
 New Skin, 2795.  
 New Zealand, sulfuric acid in, 1010.

- Nickel, catalyst, 916, 917, 1122.  
 —, fixation nitrogen with, 689.  
 —, oxidizing ammonia by, 894.  
 Nickel bromide, reducing inflammability cellulose nitrate by, 1779, 1782.  
 Nickel caseinate, reducing inflammability celluloid by, 2754.  
 Nickel chloride, coloring celluloid by, 1896.  
 —, reducing inflammability cellulose nitrate by, 1779, 1782.  
 Nickel iodide, reducing inflammability cellulose nitrate by, 1779, 1782.  
 Nickel nitrate, 2817.  
 —, concentrating nitric acid with, 1002.  
 Nickel oxide, catalyst, 912, 917, 1111.  
 —, catalytic action of, 1458.  
 Nickel oxalate, coloring celluloid by, 1896.  
 Nickel oxide, nitric acid manufactured with, 811.  
 Nickel salts, absorption of, by cellulose, 114.  
 Nickel sulfate, action of, on cotton, 141.  
 Niefdenfuhr chamber, 1213.  
 Nigrosine, dyeing cellulose acetate with, 3055.  
 Niobium, promoter of, 937.  
 Niter, analysis, 736, 737, 767.  
 —, losses in sulfuric acid manufacture, 1247.  
 —, sampling, 767.  
 —, supply of to lead chambers, 1227.  
 Niter cake, 782.  
 —, absorbing ammonia by, 788.  
 —, acetic acid purified by, 803.  
 —, acidity in, determining, 787, 810.  
 —, alum from bauxite and, 789.  
 —, alum substitute, from 791.  
 —, aluminium oxide prepared with, 805.  
 —, aluminium sulfate prepared with, 805.  
 —, ammonium sulfate manufacture by, 792.  
 —, analysis of, 810.  
 —, arsenic in, determining, 811.  
 —, blanc fixe from, 788.  
 —, bleaching with, 796.  
 —, bleaching textiles with, 793.  
 —, caustic soda from, 798, 799.  
 —, chrome liquor containing, 807.  
 Niter, composition of, 767, 787.  
 Niter cake, copper pickled by, 804.  
 —, diamonds cleaned with, 807.  
 Niter cake, disposal of, 763.  
 —, effervescing mixtures containing, 806.  
 —, ethyl tomate manufactured with, 802.  
 —, extracting copper by, 792.  
 —, extracting zinc with, 792.  
 —, extracting grease with, 791.  
 —, fertilizer containing, 807.  
 —, flaking, Hough apparatus for, 808.  
 —, formic esters with, 802.  
 —, glass manufacture with, 800, 807.  
 —, glazing bricks with, 792.  
 —, granulating, 763, 782.  
 —, hydrochloric acid from, 805, 808.  
 —, hydrogen manufacture from, 801.  
 —, iron in, determining, 810.  
 —, lithopone from, 788.  
 —, magnesium sulfate from, 792, 804.  
 —, manganese purified by, 803.  
 —, nitric acid in, determining, 810.  
 —, nitrogen in, determining, 978.  
 —, nitrous acid in, determining, 810.  
 —, obtaining sulfur by means of, 804.  
 —, oxalic acid from, 788.  
 —, oxidizing photographic baths with, 805.  
 —, paper sizing containing, 808.  
 —, pearl hardening from, 788.  
 —, pickling, use of, for, 793.  
 —, polysulfates from, 817.  
 —, ponolith from, 788.  
 —, powdered, 798.  
 —, precipitating rosin by, 796.  
 —, pulverizing, 798.  
 —, recovery of, 764.  
 —, recovery sulfuric acid from, 790.  
 —, regenerating fatty acid in soap by, 792.  
 —, recrystallization of, 798.  
 —, salt cake from, 797.  
 —, salt cake substitute, 807.  
 —, separating metals by, 803.  
 —, sizing paper with, 790, 806.  
 —, sizing pulp with, 799.  
 —, sodium hydroxide from, 779.  
 —, sodium sulfate from, 789, 804.  
 —, solid sulfuric acid from, 789.  
 —, steel pickling by, 795.  
 —, sulfonating dyes by, 804.  
 —, sulfur from, 804.  
 —, sulfur in, recovery of, 1027.  
 —, sulfur obtained by means of, 804.  
 —, sulfur dioxide from, 1087.



- Niter cake, sulfuric acid from, 800, 803, 1300.  
 —, sulfuric acid from sulfur and, 793.  
 —, sulfuric acid in, 773.  
 —, sulfuric acid recovery from, 790.  
 —, superphosphate manufacture from, 788, 808.  
 —, tar in, determining, 811.  
 —, tin recovery with, 802.  
 —, treating lead ores with, 803.  
 —, treating tungsten ores with, 792.  
 —, treating zinc ores with, 803.  
 —, use of, 786, 787.  
 —, utilizing leather clippings by, 792.  
 —, vanadium ores treated by, 788.  
 —, viscose precipitated by, 805.  
 —, water glass manufacture with, 792.  
 —, zinc recovery with, 802.  
*Niter cake, see also Sodium acid sulfate.*  
*Niter lime, see Calcium cyanamide.*  
 Niter pots, manufacture of sulfuric acid with, 1228.  
 Nitracellulose, 1688.  
 Nitramidine, 1571.  
 Nitraniline, cellulose acetate solvent, 3038.  
 —, nitrostarch stabilizer, 1828.  
*p*-Nitraniline, 248.  
 —, dyeing cellulose acetate by, 3055.  
*p*-Nitraniline hydrochloride, 250.  
 Nitranilin red, dyeing cellulose acetate with, 3055.  
*Nitrate of lime, see Calcium nitrate.*  
*Nitrated corn pith, see Corn pith, nitrated.*  
 Nitrated molasses, 1855.  
 Nitrated naphtha, 2393.  
*Nitrated paper, see Cellulose nitrate, paper.*  
*Nitrated paper, see Paper, nitrated.*  
*Nitrated paper, see Paper, nitration of.*  
 Nitrated resins, 1825, 1869.  
 Nitrated resin, water proofing, cellulose nitrate with, 1754.  
*Nitrated starch, see Starch, nitrated.*  
*Nitrated turpentine, see Turpentine, nitrated.*  
*Nitrated white pine, see Nitrolignin.*  
 Nitrates, determining, Devarda method, 738.  
 —, —, Pelouze method, 738.  
 —, manufacture of, Badische method, 998.  
 Nitration, addition phosphorus pentoxide in, 1687.  
 —, centrifugal, continuous, 1956.  
 Nitration, fumt elimination, 1963.  
 —, kinetics of, 1686, 2003.  
 —, mechanics of, 1686.  
 —, methods, comparison, 2054.  
 —, poisoning in, 1485.  
 —, theory of, 1681.  
 —, vacuum, 1970.  
 —, various, relative efficiency, 2054.  
 Nitrating, cotton, for, inspecting, 552.  
 —, —, testing, 552.  
 Nitrating acids, 1403.  
 —, storage, 956.  
 —, transportation, 956.  
*Nitrating acids, see also Acid, nitrating.*  
*Nitrating baths, see Spent acid.*  
*Nitre, see Niter.*  
*Nitre, see also Sodium nitrate.*  
 Nitric acid, 665.  
 —, absolute, manufacture of, 951, 982.  
 —, absorbing, 891, 1437.  
 —, absorption curve of, 1410.  
 —, absorption limit of, 1410.  
 —, acetating cellulose in presence of, 3009.  
 —, acids from, recovery, 1444.  
 —, action on aluminium, 950, 955.  
 —, action on cellulose, 161.  
 —, action on cotton, 117.  
 —, action on iron, 955.  
 —, action on starch, 476.  
 —, ammonium nitrite, manufacture of, 1912.  
 —, analysis, nitrometer for, 964.  
 —, apparatus resistant to, 897.  
 —, bleaching, 832, 984.  
 —, boiling points of, 952, 954.  
 —, compound of sulfur trioxide and, 1002.  
 —, concentrated, action on lead, 1324.  
 —, —, manufacture of, 677, 699, 844, 890, 985.  
 —, concentrating, 812, 877, 982, 985, 998, 1446.  
 —, —, arsenic acid for, 991.  
 —, —, Bohre method, 1518.  
 —, concentration, Dieterle apparatus, 998.  
 —, concentrating, electrolytic method, 890.  
 —, concentration, Guttman apparatus, 842, 999.  
 —, concentrating, Jones system, 1030.  
 —, —, pickel nitrate for, 1002.  
 —, —, nitrogen tetroxide for, 993.  
 —, —, Pauling method, 892.

- Nitric acid, concentrating, phosphoric acid for, 991.  
 —, —, zinc nitrate for, 1002.  
 —, condensing, 749, 770, 779, 818, 836, 875.  
 —, —, containers for, 839.  
 —, —, Griesheim system, 836.  
 —, —, Guttman system, 841.  
 —, —, plate towers for, 845.  
 —, —, Skoglund apparatus, 840.  
 —, constants of, 951.  
 —, continuous manufacture, 845.  
 —, cooling, 836.  
 —, decomposition of, 954.  
 —, density, 952.  
 —, detection, 962.  
 —, determining, ferrous ammonium sulfate method, 976.  
 —, —, gas volumeter for, 968.  
 —, —, hexamethylenetetramine for, 980.  
 —, —, in niter cake, 810, 978.  
 —, —, nitrometer, for 964.  
 —, —, nitron for, 979.  
 —, —, by titration, 981.  
 —, —, volumetrically, 2317.  
 —, dilute, action of, on starch, 1571.  
 —, —, utilizing, 837.  
 —, di-9,10-monoxypheanthrylamine test for, 963.  
 —, diphenylamine test for, 963.  
 —, distilling, 838.  
 —, —, vacuum process for, 818.  
 —, effect of iodine in, 730.  
 —, effect of sodium nitrate in, 730.  
 —, electrolysis of, 714, 952.  
 —, electrolytic reduction of, 953.  
 —, estimating in presence of picric acid, 1508.  
 —, expulsion of nitrous fumes from, 1658.  
 —, ferro-silicon alloys for storage of, 957.  
 —, freezing curves of, 952.  
 —, fuming, 960.  
 —, —, composition, 985.  
 —, —, manufacture of, 989.  
 —, —, properties, 961.  
 —, —, specific gravity of, 961.  
 —, gravity of nitrous acid and (table), 1545.  
 —, Griesheim process for manufacturing, 834.  
 —, heat of combustion of, 1794.  
 —, heat of formation, 1628.  
 —, historical, 865.  
 —, hydrates of, 1406.  
 —, manufacture of, 724.  
 —, —, absorbers, 782.  
 Nitric acid, manufacture of, absorption in, 877.  
 —, —, absorption towers for, 751, 762, 838.  
 —, —, acid mains, 760.  
 —, —, alumina and, 812.  
 —, —, alumina for, 811.  
 —, —, aluminium nitrate for, 809, 911, 942.  
 —, —, ammonium nitrate for, 813.  
 —, —, Badische process, 845.  
 —, —, Birkeland process, 869.  
 —, —, bleaching, 840.  
 —, —, calcium nitrate for, 812.  
 —, —, calcium oxide for, 811.  
 —, —, calcium sulfate for, 814.  
 —, —, catalysts for, 916.  
 —, —, Classen process, 752.  
 —, —, coal for, 746.  
 —, —, cobalt oxide for, 811.  
 —, —, colorless, 984.  
 —, —, composition distillate, 771.  
 —, —, concentrated, 985.  
 —, —, concentrating, 877.  
 —, —, condenser joints, 759.  
 —, —, condenser tubes, 758.  
 —, —, condensers for, 748, 779.  
 —, —, condensing, 748, 778.  
 —, —, condensing system, 758.  
 —, —, continuous, 845.  
 —, —, coolers, 782.  
 —, —, cooling, lead coils for, 760.  
 —, —, "cooling system," 749.  
 —, —, cyanamides for, 918, 925.  
 —, —, cyanides for, 918, 925.  
 —, —, distillation, 768.  
 —, —, Dreyfus process, 826.  
 —, —, driers, 773.  
 —, —, efficiency, 772.  
 —, —, electrolytic, 853.  
 —, —, elevating, 762.  
 —, —, firing retorts, 746, 75.  
 —, —, firing still, 746, 757.  
 —, —, flint for, 811.  
 —, —, fractions in, 769, 770.  
 —, —, frothing in, 752.  
 —, —, fuel for, 783, 826.  
 —, —, fume mains, 761.  
 —, —, gas consumption, 768.  
 —, —, general data, 784.  
 —, —, Great Britain practice, 754.  
 —, —, Gretna plant, 754.  
 —, —, Griesheim process, 834.  
 —, —, Guttman system, 841.  
 —, —, Halvorsen process, 893.  
 —, —, heat for, 746.  
 —, —, Hough condenser for, 746.  
 —, —, Hough vacuum process, 746.  
 —, —, labor requirements, 760.

- Nitric acid, manufacture of, lead ni-  
trate for, 814.  
—, —, loading retort, 775.  
—, —, manganese dioxide for, 811.  
—, —, manganic nitrate for, 814.  
—, —, metallic nitrates for, 812.  
—, —, monohydrated, 999.  
—, —, nickel oxide for, 811.  
—, —, niter cake for, 782, 788.  
—, —, niter cake in, 763.  
—, —, nitrates for, 918, 919.  
—, —, from nitrogen oxides, 700.  
—, —, oil-bath heating for, 746.  
—, —, Ostwald process, 911.  
—, —, Pauling process, 881.  
—, —, peroxides and, 812.  
—, —, plant capacity, 772.  
—, —, plate towers for condensing,  
845.  
—, —, polysulfates for, 815.  
—, —, du Pont method, 843.  
—, —, processes for, 678.  
—, —, Queen's Ferry Plant, 773.  
—, —, Quinan process, 893.  
—, —, Raschig process, 846.  
—, —, receivers, for 825.  
—, —, removal nitrogen oxides, 840.  
—, —, retort for, 743, 756, 776.  
—, —, retort capacity, 784.  
—, —, retort firing, 768, 783.  
—, —, Rohrmann and Niedenführ  
process, 839.  
—, —, running in the acid, 768.  
—, —, Schönherr process, 853.  
—, —, Serpek process, 918.  
—, —, Skoglund process, 840.  
—, —, sodium hydroxide and, 811.  
—, —, sodium nitrate method, 722,  
741, 742.  
—, —, still for, 744.  
—, —, storing sulfuric acid in, 755.  
—, —, sulfuric acid for, 746.  
—, —, Toniole process, 893.  
—, —, Uebel process, 815.  
—, —, vacuum, Dreyfus process, 826.  
—, —, Hough process, 829.  
—, —, Volz process, 826.  
—, —, vacuum process for, 818.  
—, —, Valentiner process, 818.  
—, —, ventilation in, 763.  
—, —, vitriol for, 746.  
—, —, working results, 772.  
—, —, yields, 772, 784, 825.  
—, —, zinc oxide for, 811.  
—, —, mercerization cellulose by, 1671.  
—, —, mixture of sulfuric acid and,  
1403.  
—, —, mixtures sulfuric acid and vapor  
density of, 1403.  
Nitric acid, mordants from, 946.  
—, niter cake for manufacture of,  
788.  
—, niter cake from, 786.  
—, nitrogen in (table), 1557-1565.  
—, nitrogen oxides into, 696.  
—, ortho-, 952.  
—, oxidizing sulfur with, 1042.  
—, paint remover containing, 2563.  
—, partial pressure with sulfuric  
acid, 1403.  
—, poisoning in manufacture of,  
752, 1485.  
—, preventing fog in collodion by,  
2816.  
—, properties, 951.  
—, pumps for, piston packings, 825.  
—, purifying, 751, 954, 984.  
—, —, Dieterle apparatus, 998.  
—, recovery of, 891, 946.  
—, recovery, absorbents containing,  
948.  
—, —, from glucose manufacture,  
947.  
—, —, solvents for, 1467.  
—, —, from toluene nitration, 1424.  
—, refining, 984.  
—, retorts for, 756.  
—, separating nitrous acid from, 962.  
—, separating sulfuric acid from,  
1426.  
—, silicon alloys for storage of, 957.  
—, solubility of, 953.  
—, solubility aluminium in, 950.  
—, solubility metals in, 953.  
—, solubility silicon-iron alloys in,  
957.  
—, specific gravity (table), 1564,  
1546.  
Nitric acid, sulfuric acid mixtures of,  
*see Mixed acid.*  
—, sulfur trioxide compound of,  
1002.  
—, stability in acetic acid, 953.  
—, still for manufacture of, 744.  
—, storage, 955.  
—, temperature equilibrium of, 952.  
—, testing, arbutine for, 963.  
—, —, berberine for, 963.  
—, —, brucine for, 963.  
—, —, hydrazine sulfate for, 964.  
—, —, hydrostrychnine for, 964.  
—, —, phenolsulfonic acid for, 963.  
—, —, salicylic acid for, 964.  
—, transportation, 955.  
—, —, absorbents for, 948.  
—, transporting, aluminium for, 839.  
—, —, silver vessels for, 839.  
—, treatment wood pulp with, 271.

- Nitric acid, Uebel apparatus for manufacture of, 815.  
 —, use of, in sulfuric acid manufacture, 1228.  
 —, Valentiner process for manufacture of, 818.  
 —, vacuum manufacture, yield, 825.  
 —, vapor pressure of, 1404.  
 —, vapor tension of, 952.  
 —, viscosity of, 952.  
 —, waste, recovering, 843.  
 —, yields, 784, 825.  
*Nitric anhydride, see Nitrogen pentoxide.*  
*Nitric ether, see Ethyl nitrate.*  
 Nitric oxide, manufacturer of, electrolytic, 853.  
*Nitric oxide, see Nitrogen dioxide.*  
 Nitric vapors, condensing, 751.  
 Nitrides, 1006A.  
 —, briquetting, 923.  
 —, manufacture of, nitric acid from, 919.  
 —, —, Serpek process, 918.  
 —, nitric acid from, 918.  
*Nitrilmalonic acid, see Cyan-acetic acid.*  
 Nitrites, decomposition by urea, 964.  
 —, determination, 962.  
 —, separating nitric acid from, 962.  
 Nitrogen, absorbing, 698.  
 —, ammonia from, 900.  
 —, amount of, in cotton, 638.  
*Nitrogen, assimilable, see Nitrogen, available.*  
 —, assimilation of, 692.  
 —, atmospheric, oxidation of, 1005.  
 —, atomic weight of, 692.  
 —, available, production of, 849.  
 —, combining with oxygen, 869.  
 —, combustion of, 704.  
 —, density of, 1237.  
 —, determining, 2308.  
 —, —, Devarda method, 738.  
 —, —, ferrous ammonium sulfate method, 976.  
 —, —, Kjeldahl method, 2318.  
 —, —, in niter cake, 978.  
 —, —, nitrometer for, 737, 964, 2308.  
 —, —, nitrometer, details, 1681.  
 —, —, by nitrometer, errors in, 2319.  
 —, —, nitrometric, 737.  
 —, —, nitron for, 980.  
 —, —, Schloesing method, 2313.  
 —, —, Schultze-Tiemann method, 2313.  
 —, —, stannous chloride method, 2315.  
 Nitrogen, determining, stannous sulfate method, 2315.  
 —, discovery, 679.  
 —, electrothermic combustion of, 704.  
 —, fixation of, 681, 689, 847, 891, 1004.  
 —, —, Birkeland process, 869.  
 —, —, calcium plumbate for, 849.  
 —, —, feldspar for, 917.  
 —, —, Pauling process, 881.  
 —, —, Schonherr process, 853.  
 —, formation of, 684.  
 —, —, bacterial, 680.  
 —, gasometric density, 693.  
 —, history, 679.  
 —, liquefaction of, 692.  
 —, liquid, specific gravity of, 692.  
 —, manufacture of, 686.  
 —, —, biological methods, 704.  
 —, —, nitrides from, 920.  
 —, moist, weight of (table), 1549.  
 —, obtaining, 684.  
 —, occurrence, 680.  
 —, oxidation of, 853.  
 —, oxides of, 1004.  
 —, —, action on cellulose, 161.  
 —, preparation of, 685.  
 —, properties of, 691.  
 —, pure, preparation of, 691.  
 —, —, manufacture, 688.  
 —, purifying, 688.  
 —, separation from air, 684.  
 —, separation from oxygen, 686.  
 —, solubility of, 692.  
 —, specific gravity of, 692.  
 —, synthesis, 897.  
 —, titanous chloride for determining, 738.  
 —, valence of, in nitrogen monoxide, 712.  
 Nitrogen acids, determining, 1507, 1510.  
*Nitrogen carriers, see Catalysts.*  
 Nitrogen dioxide, 694.  
 —, absorption of, by sulfuric acid, 1304.  
 —, manufacture of, 712, 853, 869, 881.  
 —, —, Birkeland process, 869.  
 —, —, Schönherr process, 853.  
 —, nitrogen in (table), 1557-1565.  
 —, physical constants of, 715.  
 —, preparation, 699.  
 —, preparing nitrogen from, 691.  
 —, properties, 715.  
 —, solubility of, in sulfuric acid, 1304.  
 —, specific gravity of, 715.  
 —, volume reduction (table), 1550-1556.

- Nitrogen iodide, 437.  
 —, addition to iodizer, 2812.  
 Nitrogen monoxide, 694, 709.  
 —, formation, 711.  
 —, fuel for motors, of gaseous, 695.  
 —, hydrate of, 711.  
 —, preparation of, 711.  
 —, preparing nitrogen from, 691.  
 —, properties, 711.  
 —, purification of, 712.  
 —, solid, 711.  
 —, specific gravity of, 711.  
 Nitrogen oxides, 695, 694.  
 —, absorption of, 804, 1001.  
 —, determining, 1506, 1510.  
 —, influence of, in cellulose nitration, 1662.  
 —, manufacture of, 696, 697, 705.  
 —, —, ammonia, for, 910.  
 —, nitric acid from, 696, 700.  
 —, preparation of, 695.  
 —, recovery of, 128, 1442.  
 —, sulfuric acid manufacture with, 1227.  
 —, treatment of wood pulp with, 271.  
 Nitrogen pentoxide, 694, 721.  
 —, compound of sulfur trioxide and, 1411.  
 —, determination, 962.  
 —, formation of, 721.  
 —, manufacturer of, 998, 999.  
 —, nitrating cellulose with, 1673, 2029.  
 —, preparation, 721.  
 —, properties, 722.  
 —, sulfur trioxide compound of, 1412.  
 —, transporting, 721.  
 Nitrogen peroxide, *see* Nitrogen tetroxide.  
 Nitrogen tetroxide, 717, 694, 720.  
 iso-Nitrogen tetroxide, 720.  
 Nitrogen tetroxide, action of, on cellulose, 1640.  
 —, amyl acetate as solvent of, 1467.  
 —, concentrating nitric acid with, 993.  
 —, constitution of, 719.  
 —, density of, 719, 720.  
 —, explosive of lead nitrate and, 721.  
 —, liquid, manufacture, 719.  
 —, —, specific gravity of, 720.  
 —, manufacture of, 864.  
 —, —, Birkeland process, 869.  
 —, solid, 720.  
 —, solvents for, 720.  
 Nitrogen trioxide, 716.  
 —, absorption of, 716.  
 Nitrogen trichloride, amyl acetate as solvent of, 1467.  
 —, isomeric, 717.  
 —, metameric, 717.  
 3-Nitro-4-acetamidobenzoic acid, cellulose esters solvent, 2544.  
 Nitroacetin, 2390.  
 p-Nitroacetoacetanilid, cellulose ester solvent, 2545.  
 Nitroacetylcellulose, 1790.  
 —,  $\beta$ -naphthol amyl ether as solvent for, 2541.  
 Nitroacetylcellulose, *see also* Acetyl-nitrocellulose.  
 Nitroamylin, 1567, 1816, 1867.  
 Nitro-amyloid, 1669.  
 Nitrobenzene, 1810, 1854, 1855, 2054, 2385, 2665, 2939, 2962, 2969, 2971, 2973.  
 —, cellulose ester solvent, 2544.  
 —, cellulose nitrate solvent of ethyl acetate and, 2386.  
 —, cellulose nitrate, solvent of ethyl nitrate and, 2386.  
 —, colloidizing cellulose nitrate by, 2251, 2972.  
 —, dissolving nitrosaccharose by, 1850.  
 —, explosive of nitrostarch and, 1817, 1825.  
 —, fulminating composition containing, 1818.  
 —, indurating cellulose nitrate with, 1897.  
 —, manufacture of, recovery acids from, 947.  
 —, nitroerythrite and, 1859.  
 —, paint remover containing, 2562.  
 —, spent acid from, denitrating, 1464.  
 Nitro-benzoiique, 2973.  
 Nitrobenzol, *see* Nitrobenzene.  
 Nitrobenzoyl nitrate, cellulose ester solvent, 2541.  
 p-Nitrobenzylidene acetophenone, reaction with lignocellulose, 262.  
 Nitrobutylcellulose, cellulose ester solvent, 2541.  
 Nitrocarbinol, *see* Nitromethane.  
 Nitrocarbohydrate, explosive of nitrohydrocarbon and, 1848.  
 Nitrocellulose, blasting use of, 1850.  
 Nitrocellulose, *see also* Cellulose nitrate.  
 Nitrocellulose dynamite, 2972.  
 Nitrocellulose spks., *see* Filaments, artificial, cellulose nitrate.  
 Nitrocellulose sulfuric acid esters, *see* Cellulose nitrate, sulfuric acid esters.

- Nitrocellulose triamide, 1599.  
*Nitro-chloroform, Nitrochloromethane*  
*see Chloroform.*  
*Nitrocotton, see Cellulose nitrate.*  
 Nitrocresol, 2963.  
 —, spent acid from, denitrating,  
 1464.  
 Nitrocumene, 1855.  
 —, reducing inflammability cellulose  
 nitrate by, 1785.  
 Nitrocymene, cellulose ester solvent,  
 2544.  
 Nitroextrin, 1824, 1853.  
 —, acetin, as solvent of, 1854.  
 —, explosive of resin and, 1854.  
 Nitrodextrose, 1853.  
 Nitrodiazotoluene perchlorate, 1859.  
 Nitrodulcite, 1843, 1849, 1865.  
 Nitro-epidermose, 1805, 2550, 2755.  
 Nitroerythrite, 1857.  
 —, accidents from, 1857.  
 —, cap composition containing, 1859.  
 —, detonator of, 1858.  
 —, manufacture of, Classen process,  
 1859.  
 —, —, Stettbacher process, 1861.  
 —, —, Thieme process, 1857.  
 —, percussion sensitivity, 1860.  
 —, properties, 1860.  
 —, sensibility to percussion, 1860.  
 —, solubility, 1860.  
 Nitrofibroin, 1870, 1881.  
 Nitroformin, 2390.  
 —, cellulose acetate solvent, 3033.  
 Nitrofulmin, 1849.  
 Nitrogelatin, 2820.  
*Nitrogenized rags, see Cellulose ni-*  
*trate.*  
 Nitroglucose, 1619, 1669, 1854, 2663,  
 2803, 2840, 2850.  
 —, flexibility to photo plates by,  
 1855.  
 —, photographic application of, 2803.  
 —, plastic cellulose nitrate and, 1855.  
 Nitroglucose paper, 2850.  
 Nitroglycerol, 2663, 2820, 2968, 2971.  
 —, absorbent for, wood pulp as, 284.  
 —, acid for manufacture of, 1428.  
 —, cellulose ester solvent, 2536.  
 —, cellulose nitrate and, 2948.  
 —, cellulose nitrate for combining  
 with, 561.  
 —, cellulose nitrate solvent of methyl  
 alcohol and, 2385.  
 —, combustion of, gases produced,  
 1627.  
 —, decomposition of, 1716.  
 —, effect mould on, 1711.  
 —, explosive containing, 184.  
 Nitroglycerol, explosive of cellulose  
 nitrate and, 1632, 1754.  
 —, explosive of sulfur, nitrated wood  
 and, 1632.  
 —, fulminating composition contain-  
 ing, 1818.  
 —, gelatinated, 1634.  
 —, heat of combustion, 1628.  
 —, heat of formation, 1628.  
 —, heat units in, 1622.  
 —, manufacture, impure nitric acid  
 for, 730.  
 —, nitrogen in, estimating, nitron  
 for, 2316.  
 —, plastic of cellulose nitrate and,  
 1619.  
 —, recovery of, 1309.  
 —, saponification, 1679, 1700, 1717.  
 —, spent acid from, recovery, 1456.  
 —, stability, determining, 2332.  
 —, stabilizing, 1829.  
 —, waste acid from, 1425.  
 —, waste acids from, recovery of,  
 1442.  
*Nitroglycerol, see also Glycerol nitrate.*  
 Nitroglycerol powders, action ultra-  
 violet light on, 1714.  
 Nitrogravimeter, Oddo, 2312.  
 Nitroguanidine, 1764.  
 —, stabilizer, 2942.  
 Nitrohydrocarbon, explosive of nitro-  
 carbohydrate and, 1848.  
 Nitrohydrocarbons, 2962.  
 Nitrohydrocellulose, 1692.  
*Nitrohydroxylaminic anhydride, see*  
*Nitrogen dioxide.*  
*Nitrohydroxylaminic acid, see Nitrogen*  
*dioxide.*  
 Nitroinosite, 1843.  
 Nitro-inulin, 1600.  
 Nitroisobutylglycerol trinitrate, cel-  
 lulose ester solvent, 2536.  
 Nitroisodulcite, 1843.  
 Nitro-jute, 8, 1807.  
 Nitro-jute, hygroscopicity of, 1807.  
 —, properties of, 1807.  
*Nitro-jute, see also Jute, nitration of.*  
 Nitrol, 1871.  
 Nitrolactin, 1843.  
 Nitrolactose, 1669, 1843, 1855.  
 Nitroleum, 2973.  
 Nitrolignin, 285, 318, 323, 1808, 2927,  
 2967, 2969, 2974.  
 —, impurities in, 322.  
 —, ignition temperature of, 285.  
 —, manufacture of, 2050.  
 —, purifying, 2053.  
 —, smokeless powder from, 288.  
 —, stability of, 285.

- Nitrolignin, viscosity of, 1814.  
 Nitrolignin powders, 2054.  
 Nitrolin, 1855.  
 Nitroline, 1804, 2973.  
 Nitrolite, 1829.  
 Nitrolyl groups, cellulose ester solvent, 2547.  
 Nitromannite, 1846, 1861, 1862, 2256, 2963.  
 —, decomposition of, 1866.  
 —, detonation, velocity of, 1795.  
 —, explosive containing, 1867, 1868.  
 —, explosive of cellulose nitrate and, 1819.  
 —, explosive of nitrostarch and, 1819.  
 —, heat of combustion, 1795.  
 —, heat of formation, 1628.  
 —, properties, 1864.  
 —, rotatory power of, 1867.  
 —, saponification of, 1861.  
 —, stabilizing, 1829.  
 —, thermal properties of, 1867.  
 —, velocity of combustion, 1795.  
 Nitromannite (hexa), 2971.  
 Nitromannitol, *see* Nitromannite.  
 Nitrometer, 737, 964.  
 —, Crum's development of, 1642.  
 Nitrometer, details of operation, 1681.  
 —, errors in use of, 2319.  
 —, Beckett method, 2320.  
 —, sodium nitrate analysis by, 737.  
 Nitromethane, 2389.  
 —, amyl acetate substitute, 2582.  
 Nitromethyl acetanilid, 2387.  
 Nitromethylnaphthalene, 2963.  
 Nitromolasses, 1855.  
 Nitron, 736, 1679, 2315, 2316.  
 —, determination nitrates by, 979.  
 Nitron nitrate, 979.  
 Nitron picrate, 2316.  
 Nitron trinitroresol, 2317.  
 Nitronaphthalene, 1810, 1821, 1854, 2962.  
 —, cellulose ester solvent, 2539, 2544, 3040.  
 —, colloiding cellulose nitrate by, 2251.  
 —, reducing inflammability celluloid by, 2762.  
 mono-Nitronaphthalene, 1784.  
 Nitronaphthalene trichloride, cellulose ester solvent, 2539.  
 Nitronaphthalin, *see* Nitronaphthalene.  
 Nitronaphthyl acetate, cellulose ester solvent, 2539.  
 Nitrooxycellulose, 1661, 1692.  
 Nitropaper, 2971.  
 —, varnish of, 2580.  
 Nitroparchment, 1592.  
 Nitropetroleum, 2964.  
 Nitrophenic acid, *see* Picric acid.  
 Nitrophenic acid, *see* Picric acid.  
 Nitrophenol, 1854.  
 —, cellulose acetate softener, 3042.  
 —, nitroerythrite and, 1859.  
 Nitrophenol ethers, 2387.  
 Nitrophenyl compounds, cellulose ester solvent, 2547.  
 Nitrophenyl salicylate, cellulose acetate softener, 3042.  
 Nitrophthalic acid, 1784.  
 Nitroplastic, 1694.  
 Nitropylin, 2973.  
 Nitrosaccharose, 1849, 2256, 2801.  
 —, properties, 1850.  
 —, solubility of, 1850.  
 m-Nitro-salicylic acid, *see* Anilotic acid.  
 Nitro-semicellulose, 1876.  
 Nitrosoanthron, *see* Nitro-anthracene (9).  
 iso-Nitrosoantipyrine, *see* Nitroso-phenyldimethylpyrazol.  
 β-Nitrosodimethylaniline, 962.  
 Nitrosodiphenylamine, 1763, 1765.  
 Nitrosodisulfonic acid, 1250.  
 Nitrosorbitol, 1869.  
 Nitrostarch, 1570, 1590, 1669, 1816, 2968.  
 —, acetanilid as stabilizer for, 1828.  
 —, acetoluid as stabilizer for, 1828.  
 —, acids from, recovery, 1444.  
 —, ammonium acetate as stabilizer for, 1828.  
 —, ammonium acid tartrate as stabilizer for, 1828.  
 —, ammonium arsenate as stabilizer for, 1828.  
 —, ammonium butyrate as stabilizer for, 1828.  
 —, ammonium carbonate as stabilizer for, 1829.  
 —, ammonium chromate as stabilizer for, 1828.  
 —, ammonium oxalate as stabilizer, 1829.  
 —, ammonium palmitate as stabilizer for, 1828.  
 —, ammonium propionate as stabilizer for, 1828.  
 —, ammonium pyro-tartrate as stabilizer for, 1828.  
 —, ammonium stearate as stabilizer for, 1828.  
 —, ammonium tartrate as stabilizer for, 1828.  
 —, analysis of, 1841, 1428.

- Nitrostarch, analysis of, nitron for, 2316.
- , anilids as stabilizers for, 1828.
  - , aniline as stabilizer of, 1826.
  - , aniline hydrochloride as stabilizer for, 1828.
  - , aniline nitrate as stabilizer for, 1828.
  - , aniline oxalate as stabilizer for, 1828.
  - , aniline sulfate as stabilizer, 1828.
  - , allistic effect, increasing, 1858.
  - , benzamide as stabilizer for, 1828.
  - , bicarbonate in, determining, 1842.
  - , blending, Nobel-Liedbeck process, 11.
  - , borax as stabilizer, 1830.
  - , bromaniline as stabilizer for, 1828.
  - , bromotoluidine as stabilizer for, 1828.
  - , calcium cyanide as stabilizer, 1829.
  - , chloraniline as stabilizer for, 1828.
  - , chlorotoluidine as stabilizer for, 1828.
  - , combustible paper of, 1836.
  - , cyanamide as stabilizer, 1829.
  - , detonating susceptibility, 1840.
  - , di-ammonium citrate as stabilizer for, 1828.
  - , dibenzamin as stabilizer for, 1828.
  - , distinguishing starch from, 1837.
  - , dyeing with oxides and, 1819.
  - , explosive containing, 1867.
  - , explosive of ammonium nitrate and, 1817.
  - , explosive of ammonium perchlorate and, 1826.
  - , explosive of nitrobenzene and, 1825.
  - , explosive of nitromannite and, 1819.
  - , explosive of potassium chlorate and, 1818.
  - , explosive of trinitrotoluene and, 1830.
  - , fat in, determining, 1841.
  - , flash point of, 1833.
  - , formanilid as stabilizer for, 1828.
  - , formtoluid as stabilizer for, 1828.
  - , fulminating composition containing, 1838.
  - , gelatinization of, 1836.
  - , guanidine as stabilizer for, 1828.
  - , heat of combustion, 1795.
  - , hygroscopicity of, 1833, 1834.
  - , manufacture of, 1834.
  - , nitrostarch, manufacture, see also Nitro
- Starch, nitrating*
- , moisture in, determining, 1841.
  - , mono-ammonium citrate as stabilizer for, 1828.
  - , mononitrophenalene and, 1784.
  - , nitraniline as stabilizer for, 1828.
  - , nitrotoluidine as stabilizer for, 1828.
  - , oxalyltoluid as stabilizer for, 1828.
  - , oxamic acid as stabilizer for, 1828.
  - , oxamide as stabilizer for, 1828.
  - , oxanilid as stabilizer for, 1828.
  - , phenylacetamide as stabilizer for, 1830.
  - , plastic of acetaldol and, 1817.
  - , potassium ammonium chromate as stabilizer for, 1828.
  - , potassium ammonium citrate as stabilizer for, 1828.
  - , potassium ammonium pyro-tartrate as stabilizer for, 1828.
  - , potassium ammonium tartrate as stabilizer for, 1828.
  - , precipitation of, 1835.
  - , properties of, 1831, 1838.
  - , sodium ammonium citrate as stabilizer for, 1828.
  - , sodium ammonium pyro-tartrate as stabilizer for, 1828.
  - , sodium ammonium tartrate as stabilizer for, 1828.
  - , sodium bicarbonate as stabilizer for, 1830.
  - , solubility of, 1833.
  - , speed of detonation, 1840.
  - , stabilizers for, 1827.
  - , stabilizing, 1829.
  - , storage of, 1841.
  - , testing, 1841.
  - , thiourea as stabilizer for, 182.
  - , toluamid as stabilizer for, 182.
  - , toluidine hydrochloride as stabilizer for, 1828.
  - , toluidine nitrate as stabilizer for, 1828.
  - , toluidine oxalate as stabilizer for, 1828.
  - , toluidine sulfate as stabilizer for, 1828.
  - , tri-ammonium citrate as stabilizer for, 1828.
  - , trinitrotoluene and, as explosive, 1836.
  - , transporting, 1929.
  - , viscosity of, 1833.
- Nitrostarch, see also Starch nitrated.
- Nitrosugar, 1849, 2071, 2093.



- Nitrosagar, blasting fuse of, 1850.  
 —, spent acid containing, 1415.  
 Nitrosulfonic acid, 988, 1132, 1255, 1258, 1259, 1271, 1305.  
 —, nitric acid from, 1090.  
 Nitrosulfonic anhydride, 722.  
 Nitrosulfuric acid, 1000, 1305, 1306.  
 —, acetating cellulose in presence of, 3010.  
*Nitrosulfuric acid, denitration, see Spent acid, denitration.*  
 —, Markownikoff, 1403.  
 Nitrosyl chloride, 824, 826, 836, 1305.  
 Nitrosylsulfuric anhydride, 1306.  
 Nitrosylsulfuric acid, 716, 1001, 1237, 1304, 1305, 1324, 1337.  
 —, preparation of, 1305.  
 Nitrosylsulfuric acid anhydride, 1305.  
 Nitrosynanthrose, 1819.  
 Nitro tar, 2975.  
 Nitrotoluene, 1854, 1865, 2394, 2965, 2974.  
 —, blasting fuse of, 1850.  
 —, cellulose acetate solvent, 3040.  
 —, cellulose ester solvent, 2544.  
*p*-Nitrotoluene, cellulose ester solvent, 2544.  
 —, celluloid lacquer containing, 2578.  
 Nitrotoluene, detonator of nitroerythrite and, 1858.  
 —, nitrated straw and, 1804.  
 —, nitroerythrite and, 1859.  
*p*-Nitrotoluene, reducing inflammability celluloid by, 2752.  
 Nitrotoluene, spent acid from, denitrating, 1464.  
 Nitrotoluidine, nitrostarch stabilizer, 1828.  
*Nitrotoluol, see Nitrotoluene.*  
*o*-Nitrotoluol, *see o*-Nitrotoluene.  
*p*-Nitrotoluol, *see p*-Nitrotoluene.  
 Nitro tributyltoluene, *see* Musk, artificial.  
 Nitroturmeric, 1837.  
 Nitrous acid, decomposition, velocity of, 704.  
 —, detection, 962.  
 —, determining, 1505, 1515.  
 —, —, in nitric cake, 610.  
 —, —, permanganate for, 984.  
 —, dissociation constants of, 704.  
 —, heat of combustion of, 1794.  
 —, treatment, wood pulp with, 271.  
*Nitrous anhydride, see Nitrogen trioxide.*  
*Nitrous ether, see Ethyl nitrite.*  
 Nitrous fumes, amyl acetate as solvent of, 1467.  
 —, inhalation of, 753.  
 Nitrous fumes, poisoning by, 753.  
 —, —, diagnosis of, 753.  
 —, —, symptoms of, 753.  
 —, —, treatment of, 753.  
 —, recovery, 1466.  
 Nitrous gases, absorption, Gay-Lussac tower, 1282.  
*Nitrous oxide see Nitrogen monoxide.*  
 Nitrous poisoning, 1264.  
 Nitrous vitriol, denitration of, 1282.  
 Nitrowood gum, 1848.  
*Nitroxanthic acid, see Picric acid.*  
*Nitroxin, see Nitrogen tetroxide.*  
 Nitroxylene, 2599, 2967.  
 Nitroxylin, 1809.  
*Nitroxylol, see Nitroxylene.*  
 Nivia, 2047, 2048.  
 Nixonoid, 2667.  
 Nobel gelignite, 2972.  
 Nobel Ardeer powder, 2968.  
 Noble fir, composition of, 261.  
 Non-cellulose, determining in cotton, 543.  
*n*-Nonoic ac.d., *see also* Pelargonic acid.  
 Nonylic acid, manufacture of ketones from, 2397.  
*n*-Nonylic acid, *see also* Pelargonic acid.  
 Nor-camphor, 2535.  
 Nordhausen sulfuric acid, 1292.  
 Norfolk cotton, constants of, 505.  
 Nori cement, 1476.  
 Normair, drying by Marlow's system, 2153.  
 Normal cellulose, 8, 20.  
 —, preparation of, 26, 27.  
*Normal cellulose, see also Cellulose, normal.*  
*Normal cellulose triacetate, see Cellulose triacetate.*  
 Normal powder, 2973.  
*Normal pyrotartaric acid, see Glutaric acid.*  
 Normanit, 2973.  
 Nucit hexanitrate, 1848.  
 Nux vomica, dry plate preservative, 2828.  
 Oak, ash in, 244.  
 —, cellulose in, 244.  
 —, constants of, 244.  
 —, composition of, 254, 262.  
 —, hydrolyzing, 204.  
 —, lignin in, 244.  
 —, moisture in, 244.  
 —, protein in, 244.  
 —, pectic matter in, 244.  
 —, Oarite, 1872, 2973.

- Oat straw, nitrated, 1804.
- Obermüller test for stability, 2362.
- Obsidianite, 1278.
- Ochre, 2970.
- Oct-acetyl-diglucose, 167.
- Octene*, see *Caprylene*.
- Octo-acetylcellulose, see *Cellulose octo-acetate*.
- Octoformylcellulose, see *Cellulose octo-formate*.
- Octoic acid, see *Caprylic acid*.
- Octoic alcohol, see *Capryl alcohol*.
- Octoic aldehyde, see *Caprylic aldehyde*.
- Octonitrocellulose, 1650, 1781.
- Octyl alcohol, 439.
- , alcohol recovery by, 2558.
- , ether recovery by, 2558.
- n-Octylene*, see *Caprylene*.
- n-Octyl acid*, see *Caprylic acid*.
- n-Octyl alcohol*, see *Capryl alcohol*.
- Octyl tartrate, rotation-dispersion of, 3036.
- Oddo nitrogravimeter, 2312.
- Oemeba, cellulose in, 326.
- Oenanthal*, see *Heptyl aldehyde*.
- Oenanthylic acid*, see *Oenanthic acid*.
- Oil, estimation in cellulose, 359.
- , etherized, 2384.
- , extracting from starch, 454.
- Oil allspice*, see *Oil of pimento*.
- Oilanise, dry plate preservative, 2830.
- Oil d'aspic, 1791.
- Oil bergamot, cellulose acetate solvent, 3034.
- Oil of bergamot, clearing celloidin by, 2782.
- Oil bitter almonds, 2389.
- Oil bitter almonds*, see also *Benzaldehyde*.
- Oil black pepper, cellulose nitrate with, 2793.
- Oil of cade, cellulose nitrate and, 2792.
- Oil of cajeput, clearing celloidin with, 2782.
- Oil caraway chaff, 2389.
- Oil cassia, 2389.
- , cellulose nitrate solvent, 2384.
- Oil cedar leaf, 2389.
- Oil of cedarwood, clearing celloidin by, 2782.
- Oil cinnamon, cellulose nitrate solvent, 2384.
- Oil cinnamon*, see also *Cinnamic aldehyde*.
- Oil citrous, dry plate preservative, 2830.
- Oil clove, dry plate preservative, 2830.
- Oil clove buds, 2389.
- Oil cloves, addition to iodizer, 2818.
- , clearing celloidin by, 2782.
- , paint remover containing, 2567.
- Oil cognac*, see *Ethyl Oenanthal*.
- Oil Eucalyptus globulus, amyl acetate from, 2488.
- Oil, foots, purifying, nfer cake for, 793.
- Oil hedeoma*, see *Pennyroyal oil*.
- Oil of juniper, celluloid lacquer containing, 2578.
- Oil of lemon grass, 2389.
- Oil of mezeron, cellulose nitrate and, 2792.
- Oil mirbane*, see *Nitrobenzene*.
- Oil mustard, cellulose nitrate with, 2793.
- Oil origanum, clearing celloidin by, 2782.
- Oil of peppermint, 2389.
- Oil of pimento, 2389.
- Oil of pine needle*, see *Pine needle oil*.
- Oil red thyme, 2389.
- Oil rose, dry plate preservative, 2830.
- Oil rosemary, dry plate preservative, 2834, 2835.
- Oil rue, 2389.
- Oil sassafras, 2389.
- Oil tar, decreosoted, 2388.
- Oil savin, cellulose nitrate and, 2792.
- Oil tansy, 2389, 2393.
- Oil thyme, 2387.
- , clearing celloidin by, 2782.
- , dry plate preservative, 2830.
- Oil turpentine, iodizer addition to, 2813.
- Oil of vitriol*, see *Sulfuric acid*.
- Oil vitriol, brown*, see *Sulfuric acid, brown*.
- Oil of vitriol, fuming*, see *Oleum*.
- Oil wintergreen, menthylated, 2392.
- Okra, 246.
- Olefiant gas, 1576.
- Olefine*, see *Ethylene*.
- Olefines, nitrated, 2952.
- Oleic acid, 535, 3084.
- , alcohol recovery by, 2558.
- , cellulose acetate solvent, 3031, 3035.
- , ether recovery by, 2558.
- , paint remover containing, 2900.
- , purifying cotton with, 594.
- Oleic acid*, see *Oleic acid*.
- Oleoacetic, 2384.
- Oleum, acidity in, determining, 1126.
- , analysis of, 1126, 1329.
- , arsenic in, determining, 1127.

- Oleum, determining strength of, 1329.  
 —, distillation, continuous, 1131.  
 —, gravity of, 1191.  
 —, heat absorbed in diluting, 1353.  
 —, manufacture of, 1292.  
 —, —, absorbers for, 1161.  
 —, —, aluminum sulfate for, 1131.  
 —, —, calcium sulfate for, 1928.  
 —, —, ferric sulfate for, 1130.  
 —, —, Freiburg process, 1189.  
 —, —, magnesium sulfate for, 1131.  
 —, —, Mannheim plant, 1184.  
 —, —, Mannheim process, 1184.  
 —, —, plant tests, 1127.  
 —, —, processes other than contact, 1131.  
 —, —, Rabe process, 1190.  
 —, —, Schroeder-Grillo process, 1164.  
 —, —, —, history of, 1162.  
 —, —, sodium pyrosulfate for, 1293.  
 —, —, sulfates for, 1128.  
 —, —, ultraviolet light for, 1132.  
 —, —, vacuum process, 1131.  
 —, —, zinc sulfate for, 1131.  
 —, mixtures sulfuric acid and, 1310.  
 —, properties, 1191.  
 —, sampling, 1330.  
 —, specific heat of, 1318.  
 —, specific gravity of, 1191.  
 —, specific gravity of (table), 1527.  
 —, specific gravity, determination of, 1126.  
 —, sulfuric acid in, determining, 1311.  
 —, sulfur trioxide in, determining, 1127.  
 —, storage, 960.  
 —, strength of, determining, 1329.  
 —, testing, heat rise method, 1402.  
 —, transportation, 960.  
 —, weighing, pipette for, 1329.  
 Oleum, see also Pyrosulfuric acid.  
 Oleum, see also Sulfuric acid, fuming.  
 Oleum andropogon atrati, see Lemon-grass oil.  
 Oleum vitrioli per campanum, 1007.  
 Omnicolor plates, 2877.  
 Onyx, imitating, celluloid for, 2722.  
 Osmrawutte cotton, constants of, 506.  
 Opal glass, pictures on, 2849.  
 Opalotypes, 2849.  
 Ophrydium, cellulose in, 326.  
 Opium, see also Morphine.  
 Opt tower, 1221, 1225.  
 Ophthalmology, celluloid in, 2743.  
 Optics, celluloid uses in, 2744.  
 Orange lightning powder, 2973.  
 Orange powder, 2973.  
 Orcein, 2784.  
 —, litmus-lactose, test papers, 1776.  
 Orchitis, cellulose nitrate in treatment of, 2788.  
 Orcin, reaction with lignocellulose, 262, 263.  
 Orcinol, see Orcin.  
 Organifiers, collodion, 2846.  
 Organisms, microscopic, filtration, collodion for, 1772.  
 Oriasite, 1810.  
 Orleans cotton, constants of, 505.  
 —, diameter of fibers, 508.  
 —, length of fibers, 509.  
 Ornamenting, celluloid for, 2744.  
 Orsacoid, 2540.  
 Orthocellulose, 350.  
 Orthochromatic emulsion, 2869.  
 Orthochromatic photography, 2796.  
 Orthochromatizing emulsions, 2876.  
 Orthochrome T, 2874.  
 Ortho-compounds see *o*-Compounds.  
 Ortho-nitric acid, 1686.  
 Orthopedics, celluloid in, 2743.  
 Orthophosphoric acid, see Phosphoric acid.  
 Osmates, catalytic action of, 1151.  
 Osmium, ammonia by nitrogen and, 902.  
 —, catalyst, 918.  
 Osmium oxide hydrate, 938.  
 Osmotic pressure, cellulose nitrate membranes for, 1768.  
 Ostrich feathers, see Feathers, ostrich.  
 Ostwald viscosimeter, 1749.  
 Ostwald-Poiseuille viscosimeter, 1736, 2278.  
 Otology, celluloid uses in, 2743.  
 O. V., see Sulfuric acid.  
 Oxalacetic ether, see Ethyl oxalacetate.  
 Oxalic dehyde, see Glyoxal.  
 Oxalates, dialkyl, cellulose ester solvent, 2540.  
 —, reducing inflammability in cellulose nitrate by, 1704.  
 Oxalic acid, 427, 2071, 2821.  
 —, action of, on cellulose, 110, 121, 148, 349.  
 —, —, on cotton, 110, 119.  
 —, action on starch, 424, 476, 484.  
 —, bleaching cellulose nitrate, by, 2069.  
 —, cellulose yielding, 15.  
 —, cellulose nitrate decomposition giving, 1604.  
 —, cellulose nitrate decomposition product, 1708.  
 —, cellulose nitrate solvent of ethyl alcohol and, 2388.

- Oxalic acid, coloring celluloid by 1896.  
 —, formation from cellulose, 45.  
 —, formation in cellulose nitration, 1518.  
 —, hydrocellulose yielding, 136.  
 —, manufacture of, 255, 283, 788.  
 —, —, from cellulose nitrate wash water, 2067.  
 —, manufacture, oxycellulose and, 177.  
 —, manufacture of, from wood, 272.  
 —, niter cake in manufacture of, 788.  
 —, nitrocellulose bleached by, 617.  
 —, paint remover containing, 2563.  
 —, presence in decomposition of cellulose nitrate, 1592.  
 —, reducing inflammability in cellulose nitrate by, 1704.  
 —, removing nitrogen oxides from sulfuric acid by, 1347.  
 —, saponified cellulose nitrate yielding, 1665.  
 —, spent acid containing, 1415.  
*Oxalic ether, see Ethyl oxalate*  
 Oxalic esters, reducing inflammability cellulose nitrate by, 1789.  
 Oxalin, cellulose acetate solvent, 3033.  
*Oxalins, see Glyceryl oxalates*  
 Oxalyltoluid, nitrostarch stabilizer, 1828.  
*Oxalyl uron, see Parabanic acid.*  
 Oxamic acid, nitrostarch stabilizer, 1828.  
 Oxamide, nitrostarch stabilizer, 1828.  
*Oxaminic acid, see Oxamic Acid.*  
 Oxanilid, nitrostarch stabilizer, 1828.  
 Oxidizing agents, action of, on cellulose, 158.  
 Oxolin, 2603.  
 Oxyalkyl compounds, cellulose ester solvent, 2547.  
 Oxyaliphyl compounds, cellulose ester solvent, 2547.  
*Oxyanikranol (d), see Anthrarobin.*  
 Oxybassorin, 12.  
*o-Oxybenzaldehyde, see Salicylous Acid.*  
*o-Oxy-benzoic acid, see Salicylic Acid.*  
*o-Oxy-benzyl-alcohol, see Saligenin.*  
 Oxybutyric acid, formation from cellulose, 45.  
*di-Oxybutyric acid, see Dioxymbutyric acid.*  
*α-Oxy-iso-butyric acid, see also Oxybutyric Acid, iso-.*  
*Oxycaproic acid, see Hydroxy-caproic acid.*  
*Oxycapronic acid, see Leucic Acid.*  
 Oxycellulose, 7, 11, 122, 164, 173.  
*α-Oxycellulose, 170, 177, 1734.*  
*β-Oxycellulose, 124, 173, 174*  
*γ-Oxycellulose, 173.*  
 Oxycellulose, acetolysis of, 176.  
 —, acetylation of, 176.  
 —, action calcium hydr. side on, 19.  
 —, affinity for dyestuff, 165.  
 —, calcium permanganate, 1662, 1663.  
 —, composition of, 166.  
 —, constitution of, 22.  
 —, conversion of, into mucilage, 49.  
 —, copper value of, 383.  
 —, dextrose from, 176.  
 —, differentiating of, 174.  
 —, elementary analysis of, 176.  
 —, esterification of, 166, 3006.  
 —, estimation of, 175, 181, 381.  
 —, —, in cotton, 543.  
 —, formation of, 60, 119, 214.  
 —, —, in bleaching, 604.  
 —, formation of, from jute, 9.  
 —, formation of, retarding, 563.  
 —, —, by salts, 112.  
 —, formula of, 17.  
 —, furfural from, 15.  
 —, furfural in, 17.  
 —, furfural value of, 175.  
 —, higher nitrates of, 1902.  
 —, "hydrolysis differ value," 1....  
 —, manufacture of, Vignon method, 168.  
 —, —, Witz method, 165.  
 —, manufacture purified oxalic acid and, 177.  
 —, natural, 158.  
 —, nitrating of, 1662, 1851, 2011, 2024.  
 —, paint remover containing, 2567.  
 —, plastic containing, 170, 177, 337.  
 —, properties of, 22, 170, 1662.  
 —, reducing action of, 177.  
 —, reducing cellulose nitrate to, 1668.  
 —, reducing power of, 165.  
 —, reducing substances in, detection of, 179.  
 —, rotatory power of, 50.  
 —, salts-free, manufacture, 178.  
 —, solvents of, 170.  
 —, stains of, removing, 178.  
 —, tests for, 60.  
 —, vanadium chloride, and, 167.  
 Oxycellulose acetate, 167.  
 Oxycellulose hydrazone, 173.  
 Oxycellulose nitrate, 171, 1618, 1667, 1900.  
 —, action potassium hydroxide on 1901.

- Oxycellulose nitrate, methylene blue absorption, 1663.  
 —, solubility in ether alcohol, 1663.  
 —, viscosity of, 1663, 1907.  
*Oxychinaseptol*, see *Diaphtherin*.  
*Oxycymol*, see *Carvacrol*.  
*Oxyditoluen*, see *Orcin*.  
*Oxyethanesulphonic acid*, see *Isethionic Acid*.  
*Oxyglutaric (tri) acid*, see *Adonit*.  
 Oxygen, combining with nitrogen, 869.  
 —, condensation of, upon cellulose, 52.  
 —, density of, 1237.  
 —, determining, 1083.  
 —, oxidizing sulfur dioxide with, 1237.  
 —, separation from nitrogen, 686.  
 —, transporting, 904.  
 $\alpha$ -*Oxyhexonic acid*, see *Leucic acid*.  
*Oxymalonic acid*, see *Tartaric acid*.  
*Oxymel*, 2817.  
 —, dry plate preservative, 2830.  
*p-Oxy-m-methoxyallyl benzol*, see *Eugenol*.  
*p-Oxymethylacetanilid*, see *Methacetin*.  
*Oxymethylene*, see *Formaldehyde*.  
*Oxymethylfurfural*, 58.  
*Oxynitrocellulose*, see *Oxycellulose nitrate*.  
*Oxypicric acid*, 1871.  
*Oxyphenanthrylamine*, 2337.  
*p-Oxy-phenyl- $\alpha$ -amido-propionic acid*, see *Tyrosine*.  
*Oxyphenylbenzylketone*, see *Benzoin*.  
*o-Oxy-phenyl-carbonic acid*, see *Phenylsalicylic Acid*.  
*Oxypyruvic acid*, 16, 19, 20, 1903, 2071, 2296.  
*Oxyquinaseptol*, see *Diaphtherin*.  
*o-Oxy-quinoline-m-sulfonic acid*, see *Diaphthol*.  
*Oxysuccinic acid*, see *Maleic Acid*.  
*m-Oxy-toluene*, see *m-Cresol*.  
*o-Oxy-toluene*, see *o-Cresol*.  
*p-Oxy-toluene*, see *p-Cresol*.  
*m-Oxy-p-toluic acid*, see *m-Cresotic acid*.  
*o-Oxy-m-toluic acid*, see *p-Cresotic acid*.  
 Ozone, action of, on cellulose, 151.  
 —, —, on lignin, 152.  
 —, —, on starch, 425.  
 —, catalytic action of, 1122.  
 —, detection by starch iodide, 413.  
 —, oxidizing ammonia by, 1912.  
 —, oxidizing sulfur dioxide, with, 1237.  
 Ozone, Schönbein researches on, 1576.  
 Ozonides, lignin, 152.  
 Package, transparent, celluloid, 2718.  
 Packer diaphragm screen, 2114.  
 Packer screen, 2102.  
 Packing, use of, in sulfuric acid manufacture, 1267.  
 Pad, absorbent, cellulose, 336.  
 Pads, celluloid, 2742.  
 Paint, silicate, 1888.  
 Painting books, celluloid lacquers for, 2579.  
 Paint material, viscose as, 3082.  
 Paint remover, 2382, 2562.  
 —, acetic acid for, 2563.  
 —, acetone oil for, 2563.  
 —, alkali palmitates for, 2567.  
 —, allyl alcohol for, 2566.  
 —, alum for, 2566.  
 —, aluminium palmitate for, 2565.  
 —, aluminium resinate for, 2565.  
 —, ammonium acetate for, 2566.  
 —, ammonium caseinate for, 2568.  
 —, ammonium chloride for, 2564.  
 —, ammonium hydroxide for, 2563.  
 —, ammonium oxalate for, 2564.  
 —, amyl acetate for, 2562.  
 —, amyl tartrate for, 2566.  
 —, aniline for, 2567.  
 —, antimony oxychloride for, 2564.  
 —, antimony chloride for, 2564.  
 —, arachidic acid for, 2565.  
 —, bayberry wax for, 2565.  
 —, beeswax for, 2565.  
 —, benzaldehyde for, 2566.  
 —, benzoic acid for, 2563.  
 —, benzyl alcohol for, 2566.  
 —, benzyl benzoate for, 2567.  
 —, benzyl cresylate for, 2567.  
 —, borax for, 2564.  
 —, butyric acid for, 2563.  
 —, butyrene for, 2566.  
 —, calcium acetate for, 2566.  
 —, calcium hydroxide for, 2563.  
 —, calcium sulfide for, 2564.  
 —, camphor oil for, 2566.  
 —, candelilla wax for, 2565.  
 —, carbon bisulfide for, 2564.  
 —, carnauba wax for, 2565.  
 —, casein for, 2568.  
 —, celluloid for, 2567.  
 —, cellulose nitrate for, 2567.  
 —, ceresine for, 2565.  
 —, Chinese wax for, 2565.  
 —, Chinese wood oil for, 2567.  
 —, chloranilin for, 2566.  
 —, chlorbenzene for, 2567.

- Paint remover, chlorinated glycerol for, 2566.**  
 —, cocoa fat for, 2565.  
 —, cresols for, 2566.  
 —, cumine for, 2566.  
 —, dimethyl phthalate for, 2567.  
 —, dinitrophenol for, 2563.  
 —, ethyl butyrate for, 2562.  
 —, ethyl citrate for, 2566.  
 —, ethyl palmitate for, 2565.  
 —, fish oil for, 2566.  
 —, formic acid for, 2563.  
 —, gelatin for, 2568.  
 —, glucose for, 2566.  
 —, heptyl ketone for, 2566.  
 —, hexahydrobenzene for, 2567.  
 —, Japan wax for, 2565.  
 —, lactic acid for, 2563.  
 —, lime soaps for, 2565.  
 —, magnesium carbonate for, 2564.  
 —, methylamine for, 2567.  
 —, methyl palmitate for, 2565.  
 —, naphthalene for, 2566.  
 —, nitric acid for, 2563.  
 —, nitrobenzene for, 2562.  
 —, oil of cloves for, 2567.  
 —, oleic acid for, 2565.  
 —, oxalic acid for, 2563.  
 —, oxycellulose for, 2567.  
 —, palmitic acid for, 2565.  
 —, petrolatum for, 2565.  
 —, phenol for, 2566.  
 —, phosphoric acid for, 2563.  
 —, potassium acetate for, 2564.  
 —, potassium carbonate for, 2564.  
 —, potassium cyanide for, 2564.  
 —, potassium hydroxide for, 2564.  
 —, potassium oleate for, 2565.  
 —, propionic acid for, 2563.  
 —, rosin for, 2565.  
 —, salicylic acid for, 2563.  
 —, sodium benzoate for, 2566.  
 —, sodium fluoride for, 2564.  
 —, sodium hydroxide for, 2563.  
 —, sodium oleate for, 2565.  
 —, sodium phenolate for, 2566.  
 —, solvent, 2564.  
 —, spermaceti for, 2565.  
 —, stearic acid for, 2565.  
 —, stearine for, 2565.  
 —, succinic acid for, 2563.  
 —, sulfonated castor oil for, 2565.  
 —, sulfonated linseed oil for, 2565.  
 —, tallow for, 2565.  
 —, tartaric acid for, 2563.  
 —, terpineol for, 2567.  
 —, vaseline for, 2565.  
 —, Venice turpentine for, 2565.
- Paint remover, viscose for, 3077, 3082.**  
 —, waxes for, 2566.  
**Paints, bronze, 2580.**  
*Paints, see also Lacquers and Varnishes.*  
**Paleine, 1803, 1801, 1872, 2973.**  
**Palladium, catalytic action of, 1158.**  
 —, intensifying by, 2821.  
 —, oxidizing ammonia by, 912.  
**Palmitates, alkali, paint remover containing, 2567.**  
**Palmitic acid, paint remover containing, 2565.**  
**Palmitin, cellulose nitrate solvent, 2384.**  
 (penta) Palmityl glucose, 187.  
**Panchromatic emulsions, 2872.**  
**Pannotypes, 2849.**  
**Pancreas, action of, on starch, 417.**  
**Pancreatic extract, action of, on starch, 417.**  
**Pancreatic juice, dialysis through cellulose nitrate, 1768.**  
**Pancreatin, purifying cotton by, 562.**  
*Panes, window, see Window panes.*  
**Pantasote, 2603.**  
**Papaverine, preserving collodion emulsions by, 2846.**  
**Papaverine acetate, preserving collodion emulsions by, 2846.**  
**Papayotin, 562.**  
**Papayotin, purifying cotton by, 562.**  
*Paper, acetated, see Cellulose acetate, paper.*  
**Paper, acetation of, 532.**  
 —, adhesive, viscose for, 3078.  
 —, airproof, cellulose nitrate for rendering, 2616.  
 —, bleaching, 2071.  
 —, celluloid substratum for, 2862.  
 —, cellulose acetate, 3050.  
 —, cellulose nitrate applied to, 2381.  
 —, combustible, nitrostarch for, 1830.  
 —, copying, Taux, 2855.  
 —, cotton linters for, 533.  
 —, cotton shavings for, 533.  
 —, deterioration of, by fungi, 343.  
 —, distillation of, 44.  
 —, drying changes upon, 45.  
 —, embossed, cellulose nitrate for, 2616.  
 —, enameled, 2615.  
 —, enameling, 2600.  
 —, esparto for, 327.  
 —, explosive, 1694.  
 —, formation, 1632.  
 —, fulminating, 1815.  
 —, greaseproof, pyroxylin for, 9.  
 —, 2090.

- Paper, hygroscopicity of, 515.  
 —, impregnation, celluloid for, 2578.  
 —, lighting, 1816.  
 —, moisture-proofing, cellulose nitrate for, 1888.  
 —, mercerized, 232.  
 —, nitrated, 1619, 1815, 2802, 2840.  
 —, —, fireworks of, 1815.  
 —, —, photography, 1815.  
 —, nitrating, 532, 534, 2033, 2049, 2257.  
 —, —, ablation, 2030, 2041.  
 —, —, acetate mixture, 2045.  
 —, —, acid recovery, 2040.  
 —, —, centrifugal, 1963, 2048.  
 —, —, conversion, 2039, 2040.  
 —, —, Delpy process, 2048.  
 —, —, desiccation, 2039, 2041.  
 —, —, Emmens process, 2048.  
 —, —, feeding the paper, 2048.  
 —, —, flaking, 2039.  
 —, —, Hyatt process, 2038.  
 —, —, Mowbray method, 2034.  
 —, —, Müller-Jacobs method, 2041.  
 —, —, Schüpphaus-White method, 2034.  
 —, —, Selwig-Lange apparatus, 2048.  
 —, —, Stains method, 2047.  
 —, —, superficially, 1888, 2616.  
 —, —, Swan apparatus, 2046.  
 —, —, Tribouillet process, 2037.  
 —, nitration, disintegration, 2039.  
 —, nitroglucose, 2850.  
 —, positives on, 2867.  
 Paper positives, 2867.  
 Paper, sheets, nitration, 2048.  
 —, sizing, 790.  
 —, —, niter cake for, 790, 806, 808.  
 —, —, yiscose for, 3078.  
 —, spinning of, 271.  
 —, tissue, 532.  
 —, —, cellulose acetate from, 532.  
 —, —, nitrating, 532, 534.  
 —, viscidoid, 3081.  
 —, viscosity solutions of, 46.  
 —, waterproofed, cellulose nitrate, 2015.  
 —, waterproofing, 95.  
 —, —, celluloid for, 2690.  
 —, —, pyroxylin for, 97, 2611.  
 —, xylose from, on drying, 45.  
 —, yellowing of, 61.  
*Paper*, see also *Cotton*, *Cellulose*, *Wood*, *Lignin*.  
*Paper cements*, see *Cements*, *paper*.  
 Paper collodion, 2802.  
 Paper of Petouze, 1574.  
 "Paper yarn," 336.  
 Paproxyl, 1694.  
 Paproxylin, 1694.  
 Papyrine, 100, 126.  
 Papyroxylin, 2802, 2840.  
 Paracellulose, 8.  
*Para-compounds*, see *p-Compounds*.  
 Paraffin, 2963, 2968, 2972, 2974, 2976.  
 —, addition to, iodizer, 2813.  
 —, cellulose nitrate with, 2574.  
 Paraffin oil, explosive of nitrostarcho with, 1830.  
 Paraffin, reducing inflammability cellulose nitrate by, 1785.  
 —, solidifying alcohol by, 2598.  
 —, storage liquids in vessels coated with, 958.  
 —, waterproofing cellulose nitrate with, 1618, 1624.  
 —, see also *Vaseline*, *Mineral oils*, etc.  
 Paraffin tar, 1754.  
*Paraffinum liquidum*, 2952.  
*Paraffinum*, see also *Vaseline*.  
 Paraform, 1706.  
 —, cellulose nitrate and, 2792.  
*Paraformaldehyde*, see also *Formaldehyde*.  
 Para gum, amyl acetate substitute, 2583.  
 Paraiba cotton, constants of, 505.  
 —, length of fibers, 500.  
*Paraisopropyl aminobenzene*, see *Cumidine*.  
*Paraisopropyl benzaldehyde*, see *Cumimic aldehyde (p)*.  
*Paralactic acid*, see *Sarcosolactic acid*.  
 Paraldehyde, 2388.  
 —, cellulose ester solvent, 2543.  
 Paramanan, 7.  
*Paramorphine*, see *Thebaine*.  
*Paranitrophenol*, see *Nitrophenol (para)*.  
 Parapectic acid, 1604.  
 Parasol tips, celluloid, 2712.  
*Paratartronic acid*, see *Racemic acid*.  
 Parchment, imitation, testing, 100.  
 Parchment, manufacture, 99.  
 —, vegetable, 126.  
 —, —, preservation, cellulose nitrate, for, 2574.  
*Parchmentized cellulose*, see *Cellulose*, *parchmentized*.  
 Parchmentized paper, spectrum of, 25.  
 Parchment paper, 337.  
 —, copper value of, 383, 547.  
*Parchment Papers*, see also *Parchment*.  
 Parckut, 2669.  
 Parisian silk, 86.  
 Parkesine, 1694, 2661.  
 —, laqueing wire with, 2577,

- Parodyne, see Antipyrine.*  
*Parsley camphor, see Apol.*  
 Particles, suspended, electrolytic precipitation of, 1392.  
 Pasbosene, 1694, 2667.  
 Passementerie, cellulose nitrate for, artificial silk for, 2644, 2645.  
 Pasteur's liquid, 169.  
 Patent gunpowder, 1810.  
 Patent dynamite, 2974.  
*Patent leather, see Leather, patent.*  
 Pauly silk, 86.  
*Pauly silk, see also Filaments, artificial, Pauly.*  
 Pea meal, nitration of, 1804.  
 Pearl, artificial, celluloid for, 2720.  
 —, imitation cellulose nitrate for, 2588.  
 —, mother-of, cellulose nitrate for, 2588.  
 Pearl essence, 3060.  
 Pearl hardening, niter cake for manufacture of, 788.  
 Pearls, artificial, cellulose acetate for, 3060.  
 Pearls, uninflamable, cellulose acetate for, 3060.  
*Pear oil, see Amyl acetate.*  
 Peat, alcohol from, 205.  
 —, ammonium humate from, 2964.  
 Pectic acid, 521, 522, 1604.  
 Pectic substances, 8.  
*Pectinose, see Arabinose.*  
 Pectins, 7, 8, 11, 171, 249, 352  
 Pectins, properties of, 8.  
*Pectin sugar, see Arabinose.*  
 Pectocelluloses, 8.  
 —, occurrence, 8.  
 Pectose, 8, 352.  
 —, properties of, 8.  
 Pedals, bicycle, celluloid, 2729.  
 Peelers cotton, constants of, 505.  
 Pegamoid, 2609, 2670.  
 —, coating cartridges by, 2616.  
 Pegamoiding, 2670.  
*Peinture incombustible, 3082.*  
*Pelargonic ether, see Ethyl pelargonate.*  
 Pellicle, collodion, 2868.  
 Pellicle Marion, 2886.  
*Pellicle Marion, see also Film.*  
 Pellicular negatives, 2890.  
 Pen, celluloid, 2699.  
 Pencil, antiseptic, celluloid, 2742.  
 Penholders, celluloid, 2895.  
*Penicillium glaucum, 404.*  
 Penrose's C sensitizer, 2872.  
 Pentacetyllevulose, 662.  
 Pentacetyllevulose (mono) acetate, cellulose ester solvent, 2549.  
 Pentacetyllevulose (tetra) acetate, cellulose ester solvent, 2549.  
 Pentacetyllevulose (hepta) acetate, cellulose ester solvent, 2549.  
 Pentacetyllevulose (octo) acetate, cellulose ester solvent, 2549.  
 Pentacetyllevulose hepta acetate, cellulose ester solvent, 2549.  
 Pentacetyllevulose mono acetate, cellulose ester solvent, 2549.  
 Pentacetyllevulose octo acetate, cellulose ester solvent, 2549.  
 Pentacetyllevulose tetra acetate, cellulose ester solvent, 2549.  
 Pentachlorethane, cellulose acetate solvent, 3025, 3630.  
 Pentaerythrite, manufacture of, 1858  
 —, formate, 1860  
 Pentaerythrite tetranitrate, 1857, 1859.  
 Pentane lamp, 2494  
 Pentanes, chlorination of, 2468.  
 —, halogenation of, 2468.  
 Pentanitrocellulose, 1614, 1650.  
 —, jute, 1807.  
 Pentanitroerythrite, lead block tests of, 1857.  
*Pentanitroerythrite, see also Nitroerythrite (penta)*  
 Pentanitromannitol, 1862.  
 Pentanitrostarch, 1824  
*Pentazane, see Pyrrolidine.*  
 Pentene, 2510.  
 Pentite pentanitate, 1848.  
*Pentoic acid (primary), see iso-Valerianic acid*  
*isoPentoic acid, see Propylacetic Acid.*  
 Pentosan colloids, 7.  
 Pentosans, 238, 249, 259, 290, 316, 337, 350.  
 —, determining, 365, 375, 544.  
 Pentose nitrates, 1844  
 Pentoses, 7, 12  
*isoPentyl alcohol, see Amyl Alcohol.*  
*Pentylformic acid, see Caproic acid.*  
 Permanganates, explosive of nitrated wood and, 1842  
 Pessary, celluloid, 2742.  
*Peppermint camphor, see Menthol*  
 Pepsin, activity of, in presence of cellulose nitrate, 1770.  
 Peptone, collodion membranes treated with, 1775.  
 —, dialysis of, 1768  
 Perborates, action of, on starch, 424.  
 —, bleaching, cellulose nitrate by, 2071.  
 Perchlorates, 2947.  
 Perchlorocellulose, 2955.



- Perchloroethane*, see *Carbon trichloride*.  
*Perchloroethane*, see *Hexachlorethane*.  
*Perchloroethylene*, see *Carbon bichloride*.  
 Perchloric acid, 2622.  
*Perchloromethane*, see *Carbon tetrachloride*.  
 Perchlornitrocellulose, 2955.  
 Perchloro, 2083.  
 Percussion caps, 2981.  
 —, cellulose nitrate as protecting covering for, 1590.  
 —, nitrated paper, 1815.  
 Perdisulfuric acid, 1293.  
 Perfumed blocks, celluloid lacquers for, 2579.  
 Pergament paper, manufacture, 99.  
 Pergamyn, 337.  
 Periodate, sodium nitrate containing, 729.  
 Pericollodion, 1693.  
 Permanganate, bleaching cellulose nitrate by, 2069.  
 Permon powder, 2975, 2976.  
 Permonosulfuric acid, 1293.  
 Permutit, 1151.  
 Pernambuco cotton, constants of, 505.  
 —, diameter of fibers, 508.  
 —, length of fibers, 509.  
 Peroxides, manufacture nitric acid and, 812.  
 Peroxydase, 421.  
 Peru balsam, dry plate preservative, 2830.  
 —, overcoming contractility cellulose nitrate by, 2790.  
 Peruvian cotton, diameter of fibers, 508.  
 —, length of fibers, 509.  
 Peruvian nitrate, see *Sodium nitrate*.  
 Persulfates, 1293.  
 —, action of, 1294.  
 —, —, on cellulose, 125.  
 —, —, on starch, 424.  
 —, estimation of, 1293.  
 —, uses of, 1294.  
 Persulfuric acid, 1293.  
 Peter's explosive, 2054.  
 Petragit, 1851, 1855.  
 Petralite, 1840.  
 Petralithe, 2974.  
 Petrifoid, 1694.  
 Petrolatum, paint remover containing, 2565.  
 Petroleum, deodorizing, amyl acetate for, 2492.  
 —, dissolving sulfur by, 1037.  
 —, refining, recovery sulfuric acid from, 1306.  
 Petroleum, refining, sulfur dioxide for, 1099.  
 —, —, sulfuric acid for, 1350.  
 —, sulfur in, determining, 1042.  
 —, —, recovery of, 1033.  
 Petroleum distillate, turpentine substitute containing, 2569.  
*Petroleum ether*, see *Benzine*.  
*Petroleum oil, light*, see *Benzine*.  
 Peyton powder, 2930, 2932.  
*Pharmaceutical collodion*, see *Cellulose nitrate, pharmaceutical*.  
 Pharmaceuticals, amyl acetate in, 2492.  
 Pharmacy, cellulose acetate in, 3060.  
*Phaseolus multiflorus*, 402.  
 Phaesomannit hexanitrate, 1848.  
 Phellandrene, 2519.  
*Phenacetin, oxy-ethyl acetanilide*, see *Acetphenetide (p)*.  
 Phenanthrene, 2387.  
 —, cellulose ester solvent, 2540.  
 Phenanthrylmethyl ether, cellulose ester solvent, 2546.  
 —, cellulose nitrate gelatinizer, 1868.  
*Phenazone*, see *Antipyrine*.  
 Phenestrated tubes, 748.  
 Phenetol, 2385.  
 —, cellulose ester solvent, 2543.  
 —, see also *Ethyl phenyl ether*.  
 • *Phenic acid*, see *Phenol*.  
 Phenol, 2820.  
 —, action on lignocellulose, 262.  
 —, addition to, iodizer, 2813.  
 —, camphor with, 2517.  
 —, cellulose acetate solvent, 3027, 3042.  
 —, cellulose ester solvent, 2547.  
 —, clearing gelloidin by, 2782.  
 —, condensing carbohydrates with, 236.  
 —, condensing cellulose with, 236.  
 Phenol, effect of on viscosity cellulose nitrate, 1738.  
 —, paint remover containing, 2566.  
 —, potassium chlorate and, action on lignocellulose, 262.  
 —, reaction with lignocellulose, 262.  
 —, rendering cellulose nitrate astringent by, 2791.  
*Phenol acid*, see *Phenol*.  
 Phenol-albumen, cellulose acetate solvent, 3027.  
 • Phenol-aldehyde, 1783.  
 • Phenol-aldehyde condensations, 35.  
 • Phenol-aldehydes, 2768.  
 —, see also *Condensation products*.  
 Phenol-casin, cellulose acetate solvent, 3027.

- Phenol-chloral, cellulose acetate solvent, 3029.  
 Phenol-formaldehyde, amber synthetic of, 2721.  
*Phenol-formaldehyde, see also Phenol-aldehyde.*  
 $\beta$ -Phenolmaltoside, 183.  
 $\alpha$ -Phenolmaltosideheptacetate, 183.  
 Phenol phosphate, 2387.  
 Phenolphthalein, 1327.  
 Phenol and potassium chlorate, reaction with lignocellulose, 262.  
*Phenol propionic acid (b), see Hydrocoumaric acid (b).*  
*Phenol salicylate, see Salol.*  
 Phenol sulfonate, cellulose acetate solvent, 3036.  
 Phenolsulfonic acid, acetylating cellulose in presence of, 3009.  
 —, formylating cellulose in presence of, 3016.  
 —, testing nitric acid by, 963.  
*Phenoxyacetic ether, see Phenyl acetate.*  
 Phenylacetamide, nitrostarch stabilizer, 1830.  
*Phenylacetamide, see also Acetanilide.*  
 Phenyl acetate, 2390.  
 —, cellulose acetate solvent, 3034.  
 Phenylaceto-2-naphthalide, cellulose ester solvent, 2552.  
 Phenyl acetylsalicylate, cellulose ester solvent, 2537.  
 Phenylacetamide, cellulose ester solvent, 2545.  
*a-Phenyl-acrylic acid, see Atropic acid.*  
*b-Phenylacrylic acid, see Cinnamic acid.*  
*Phenyl alanine, see Phenyl-amino-propionic acid (a), (b).*  
*Phenylallyl alcohol, see Styrene.*  
*Phenylamine, see Aniline.*  
*Phenylamine, di-, see Diphenylamine.*  
 Phenyl anilid, cellulose ester solvent, 2540.  
 Phenyl anilid phosphate, cellulose ester solvent, 2540.  
*Phenylaniline, see Diphenylamine.*  
*Phenylbenzamide, see Benzanilide.*  
 Phenyl benzoate, 3390.  
 —, cellulose ester solvent, 2538.  
*Phenylbenzoylcarbinol, see Benzoin.*  
 Phenylbenzyl ether, 2387.  
 —, cellulose ester solvent, 2546.  
 —, cellulose nitrate gelatinizer of, 1868.  
*Phenylbenzyl-urethane, 2254.*  
*Phenylboric acid, see Borophenyllic acid.*  
 Phenyl-bornol, 2330.  
 Phenyl-camphene, 2535.  
 Phenyl carbamic ether, 324.  
 Phenyl-carbamide, cellulose ester solvent, 2544.  
*Phenylcarbinol, see Benzoyl-alcohol.*  
 Phenyl carbonate, cellulose ester solvent, 2540, 2541.  
*Phenyl carbylamine, see Phenyl-isocyanide.*  
*tetra Phenylcellulose, 235.*  
*tetra Phenylcellulose nitrate, 235.*  
*tetra Phenylcellulose sulfonate, 235.*  
*Phenylchloride, see Chlor-benzene.*  
*Phenyl chloroform, see Benzotrifluoride.*  
 Phenyl citrate, cellulose ester solvent, 2541.  
*Phenyl cyanide, see Benzonitrile.*  
 Phenyldeoxyn, 236.  
 $\beta$ -Phenyldeoxyn, 236.  
*Phenyldimethylpyrazole, see Antipyrine.*  
*m-Phenylenediamine, 1334.*  
*m-Phenylenediamine, action on lignocellulose, 262.*  
 —, determining stability cellulose nitrate by, 2335.  
 —, reaction with lignocellulose, 262.  
 —, dyeing cellulose acetate with, 3055.  
*p-Phenylenediamine, see also p-Amido acetanilide.*  
*p-Phenylenediamine hydrochloride, 2335, 2337.*  
*Phenylthane, see Ethyl benzene.*  
 Phenyl ether, cellulose acetate solvent, 2394, 3033.  
 Phenylethyl alcohol, 2388.  
*Phenylethyl carbamate, see Euphorin.*  
*Phenylethylene, see Styrene.*  
*Phenyl ethyl ether, see Phenol.*  
 Phenylethylurethane, 1736, 2278.  
*Phenyl formamide, see Formanilide.*  
 Phenyl formate, cellulose ester solvent, 2541.  
*Phenylformic acid, see Benzoic acid.*  
 Phenylglycide, 2393.  
 Phenyl glycide, cellulose acetate solvent, 3033.  
 —, cellulose ester solvent, 2537.  
*Phenylglycolic acid, see Mandelic acid.*  
*Phenyl hydrate, see Phenol.*  
 Phenylhydrazine, 16, 19, 179, 332, 1662, 1665.  
 —, cellulose nitrate solvent, 1079.  
 —, reaction of cellulose with, 19.  
 Phenylhydrazine acetate, 186.

- Phenylhydrazine hydrochloride, 1715.  
*Phenyl hydride*, see *Benzene*.  
*Phenylhydroxyacetic acid*, see *Mandelic acid*.  
*Phenyl-b-hydroxypropionic acid*, see *Tropic acid*.  
*Phenyllic acid*, see *Phenol*.  
*Phenyl isocyanate*, 324.  
*Phenyl isothiocyanate*, see also *Phenyl mustard oil*.  
*Phenyl malate*, cellulose ester solvent, 2541.  
*Phenyl mercaptan*, see *Thio-phenol*.  
*Phenylmethane*, see *Toluene*.  
*Phenylmethyl carbamide*, cellulose ester solvent, 2544.  
*Phenylmethyl ketone*, see *Hypnone Aceto-phenone*.  
*Phenylone*, see *Antipyrine*.  
*Phenyl oxide*, see *Diphenyl ether*.  
*Phenyl-o-oxybenzoic acid*, see *Phenyl-salicylic acid*.  
*Phenyl pentane*, see *Amyl benzene (n)*.  
*Phenyl phosphate*, cellulose ester solvent, 2540.  
*Phenylphosphoric dicresyl anilid*, cellulose ester solvent, 2540.  
*Phenylphosphoric dicresyl ester*, cellulose ester solvent, 2540.  
*Phenylphosphoric diethyl anilid*, cellulose ester solvent, 2540.  
*Phenylphosphoric diethyl ester*, cellulose ester solvent, 2540.  
*Phenylphosphoric dimethyl anilid*, cellulose ester solvent, 2540.  
*Phenylphosphoric dimethyl ester*, cellulose ester solvent, 2540.  
*Phenylphosphoric dinaphthyl anilid*, cellulose ester solvent, 2540.  
*Phenylphosphoric dinaphthyl ester*, cellulose ester solvent, 2540.  
*Phenylphosphoric diphenyl anilid*, cellulose ester solvent, 2540.  
*Phenylphosphoric diphenyl ester*, cellulose ester solvent, 2540.  
*Phenyl propionate*, cellulose ester solvent, 2541.  
*Phenyl propionic acid (a)*, see *Hydro-tropic acid*.  
*Phenyl propionic acid (b)*, see *Hydro-Annamic acid*.  
*Phenyl salicylate*, cellulose acetate solvent, 3032, 3039.  
 —, cellulose ester solvent, 2538.  
*Phenylsulphcarbamide*, see *Phenylthiocarbamide*.  
*Phenyl tartrate*, cellulose ester solvent, 2541.  
*Phenyl thiophosphate*, cellulose ester solvent, 2540.  
*Phenylthiourea*, see *Phenylthiocarbamide*.  
*Phenyl p-toluenesulfethylanilid*, cellulose ester solvent, 2546.  
*Phenyl p-toluenesulfonate*, cellulose ester solvent, 2546.  
*Phenyl urea*, cellulose ester solvent, 2546.  
*Phenyl urethane*, cellulose ester solvent, 2546.  
 —, see also *Euphorin*.  
*Phibrolithoid*, 2669.  
*Philosophical instruments*, celluloid in, 2695.  
*Phloretic acid*, see *Phloretin*.  
*Phlorizin*, see *Phloridzin*.  
*Phloroglucide*, 249, 368.  
*Phloroglucin*, absorption cellulose by, 63.  
 —, reaction with lignocellulose, 262, 263.  
*Phloroglucin-hydrochloric acid*, 27.  
*Phloroglucinol*, 323, 544.  
 —, reagent of, 356.  
 —, purifying, 544.  
 —, purity of, determining, 544.  
*Phloroglucinol acid*, 248, 249.  
*Phloroglucinol hydrochloride*, 545.  
*Phloroglucinol reagent*, preparation, 372.  
*Phlorrhizin*, see *Phloridzin*.  
*Phocenic acid*, see *iso-Propylacetic acid*.  
*Phoenix powder*, 2973.  
*Phonograph boxes*, celluloid, 2731.  
*Phonograph horns*, celluloid, 2732.  
*Phonograph plates*, viscose, 3079.  
*Phonograph record*, celluloid, 2731.  
 —, cellulose acetate, for, 2734.  
 —, chocolate, 2734.  
 —, edible, 2734.  
 —, transparent, celluloid, 2733.  
*Phonograph resonators*, celluloid, 2733.  
*Phonograph sound boxes*, celluloid, 2732.  
*Phonographs*, celluloid in manufacture of, 2731.  
*isoPhorone*, 424.  
*Phoscalus multiflorus*, 396.  
*Phosgene*, see *Carbonyl chloride*.  
*Phosphate emulsions*, 2852.  
*Phosphoproteins*, decolorizing starch iodide by, 411.  
*Phosphoric acid*, 2822.  
 —, action of, on cellulose, 120, 263.  
 —, —, on cotton, 110.  
 —, —, on starch, 477.

- Phosphoric acid, acetaion of hydro-cellulose with, 149.  
 —, amount in cotton, 531.  
 —, catalyst, 1122.  
 —, concentrating nitric acid with, 991.  
 —, dissolving cellulose by, 96, 97.  
 —, dissolving cellulose formate by, 3017.  
 —, dissolving hydrocellulose by, 139.  
 —, modifying starch by, 428.  
 —, nitrating with, 2023.  
 —, paint remover containing, 2563.  
*Phosphoric acid*, see also *Metaphosphoric acid*.  
*Phosphoric anhydride*, see *Phosphorus pentoxide*.  
 Phosphorus, catalyst inhibitor, 905.  
 —, chlorides of, cellulose nitrate and, 1619.  
 —, sulfur dioxide as solvent for, 1069.  
*Phosphorus chloride*, see *Phosphorus tri- and penta-chloride*.  
 Phosphorus chloride, acetating cellulose in presence of, 3011.  
 Phosphorus hydride, 941.  
*Phosphoric oxide*, see *Phosphorus pentoxide*.  
 Phosphorous acid, action of, on cotton, 110.  
 —, developer of, 2822.  
 Phosphorus pentachloride, action of on cellulose nitrate, 1643.  
 Phosphorous pentoxide, manufacture of cyanamide and, 926.  
 Phosphorus pentaoxide, nitrating cellulose with, 1656.  
 —, nitrating in presence of, 1687.  
 Phosphotungstic acid, modifying starch by, 428.  
 Photocotton, 1693.  
 Photo diaphragms, celluloid, 2748.  
*Photographic emulsions*, see *Emulsions photographic*.  
 Photographs, composite, 2865.  
 —, embossing, celluloid for, 2917.  
 Photography, bleach out process, 2884.  
 —, cadmium salts in, 2607, 2808.  
 —, celestial, 2912.  
 —, celluloid cement in, 2577.  
 —, cellulose nitrate in, 2381, 2799.  
 —, color, 2875.  
 —, cuprammonium cellulose in, 78.  
 —, nitrated paper for, 1815.  
 —, nitrosaccharose in, 2802.  
 —, orthochromatic, 2796.  
 —, oxidizing baths in, niter 805.  
 Photography, solar, 2912.  
 Photolithography, 2907.  
 Photolytic decomposition of cellulose nitrate, 1769.  
 Photo-mechanical printing, 2863.  
 —, collodion, 2799.  
 Photometry, amyl acetate in, 249.  
 Photomechanical processes, 2907.  
 Photomicrography, cellulose nitrate in, 2914.  
 Photo-ornamentation, 2863.  
 Photophane, 2917.  
 Photophonograms, celluloid, 2733.  
 Photo-reliefs, celluloid for, 2917.  
*Photo screens*, see *Screens, photo*.  
 Phototypography, 2880.  
 Photoxylin, 1693, 2780.  
 Photoxylography, 2915.  
 Photozincography, 2907.  
*Phthaldiamide*, see *Phthalylidiamide*.  
 Phthalic acid, condensation of glycerol and, 1862.  
*m-Phthalic acid*, see also *Iso-phthalic acid*.  
 Phthalic esters, cellulose acetate solvent, 3043.  
*Phthalic ether*, see *Ethyl phthalate*.  
 Phthalimide, cellulose acetate solvent, 3040.  
 Phycite, 1857.  
*Phycite*, see also *Erythrite*.  
*Phylephas macrocarpa*, 1862.  
*Phylephas macrocarpa*, nitrating, 1876.  
 Piano keys, celluloid, 2730.  
 Picamer, 1892.  
*Picea canadensis*, composition of, 260.  
*Picea engelmanni*, composition of, 260.  
*Picea mariana*, composition of, 260.  
*Picea parryana*, composition of, 260.  
*Picea rubens*, composition of, 260.  
*Picea sitchensis*, composition of, 260.  
 Pickling, niter cake for, 793, 795.  
 Picoline benzoate, cellulose nitrate solvent, 2394.  
 Picoline citrate, cellulose nitrate solvent, 2394.  
 Picoline levulinate, cellulose nitrate solvent, 2394.  
 Picoline phthalate, cellulose nitrate solvent, 2394.  
 Picoline sebacate, cellulose nitrate solvent, 2394.  
 Picoline succinate, cellulose nitrate solvent, 2394.  
 Picoline tartrate, cellulose nitrate solvent, 2394.  
*Picraminic acid*, see *Picramic acid*.  
 Picric acid, 2870, 2905, 2966, 2971.

- 2972, 2974.  
 Picric acid, analysis, nitron for, 2316.  
 —, detonator of nitroerythrite and, 1858.  
 —, estimation of, 1508.  
 —, explosion of cellulose nitrate by, 1798.  
 —, explosive of nitrated flax and, 1807.  
 —, explosive of tetranitrocellulose and, 1808.  
 —, liquors from, sulfuric acid recovery, 1299.  
 —, stability, 1701.  
 —, transporting, 1929.  
 —, waste acid from, recovering, 1426.  
*Picric acid, see Picric acid.*  
*Picronic acid, see Picric acid.*  
 Picricnitro-gelatine, 2473.  
 Pictures, waterproofing, cellulose nitrate for, 2612.  
 Pigment processes, photo, 2863.  
 Pigments, imlaying celluloid with, 2690.  
 —, *see also Lakes.*  
 Pigon's military smokeless powder, 2974.  
 Pigon's smokeless sporting powder, 2974.  
 Pinachrome, 2871, 2874.  
 Pinachrome violet, 2874.  
 Pinacone, 2389.  
 —, manufacture of, acetone for, 2400.  
 Pinacyanol, 2871, 2872, 2874.  
 Pinaverdol, 2871, 2872, 2374.  
 Pine, ash in, 244.  
 —, cellulose in, 244.  
 —, composition of, 254, 258.  
 —, constants of, 244.  
 —, lignin in, 244.  
 —, moisture in, 244.  
*Pine, nitrated, see Nitroignin.*  
 —, pectic matter in, 244.  
 —, protein in, 244.  
 Pinene, 2517.  
 —, hydrated, 2517.  
 Pinene chlorhydrochloride, 2520.  
*d*-Pinene hydrobromide, 2517.  
*d*-Pinene hydrochloride, 2517, 2520, 2528.  
 Pine needle oil, cellulose nitrate gelatinizer, 1885.  
 Pine oil, turpentine substitute containing, 2569.  
 Ping pong balls, celluloid, 2722, 2728.  
 Pin holes, 2816.  
 Pinit pentanitate, 1848.  
*Pinol hydrate, see Sobrerol (d or l).*  
 Piperazine, 2529.  
*Piperasidine, see Piperazine.*  
 Piperidine, 2529.  
 Piperine, 2529.  
 Pipe tips, celluloid, 2896.  
*Pinus divaricata*, composition of, 281.  
*Pinus murrayana*, composition of, 261.  
*Pinus palustris*, composition of, 261.  
*Pinus ponderosa*, composition of, 281.  
*Pinus strobus*, composition of, 261.  
*Piral, see Pyralis.*  
 Pitchblende, 941.  
 Plants, composition of, 3.  
 —, grafting, cellulose nitrate for, 1590.  
 Plasters, celluloid, 2741.  
 Plaster casts, cellulose nitrate lacquers for, 2583.  
 Plastic, cellulose, 284.  
 —, sulfur, 1035.  
*Plastics, see also Solvents.*  
*Plastics, cellulose acetate, see Cellulose acetate, plastics.*  
 —, cuprammonium cellulose for, 78.  
 Plastol, cellulose ester solvent, 2547.  
 Plastomenite, 2074.  
 Plate lifters, celluloid, 2917.  
 Plates, autochrome, 2877.  
 —, drying vacuum, 2941.  
 —, Omnicolor, 2877.  
 —, polychromatic, 2876.  
 —, screen, 2876.  
 Plate towers, 1217.  
 —, condensing acid with, 845.  
 Platinized asbestos, 1113, 1190.  
*Platinized, see also Asbestos, platinized.*  
*Platinized magnesium sulfate, see Magnesium sulfate, platinized.*  
 Platinized pumice, 1190.  
*Platinized pumice, see also Pumice, platinized.*  
 Platinizing, Mannheim process, 1189.  
 Platinum, action sulfuric acid on, 1324.  
 —, catalytic action, discovery of, 1102.  
 —, catalyst, 916.  
 —, concentrating sulfuric acid in, 1364.  
 —, occurrence, 1364.  
 —, output of, 1364.  
 —, oxidizing ammonia by, 894.  
 —, poisoned, renovation of, 1161.  
 —, production of, 1364.  
 —, solubility of, in sulfuric acid, 1336.  
 —, stills of, 1265.  
 —, —, Delnace, 2225.

- Platinum, stills of**, Faure-Kessler, 1365.  
 —, stills, types of, 1365, 1366.  
 —, toning with, 2858.  
**Platinum black**, inversion of starch by, 480.  
 —, oxidizing ammonia by, 892.  
**Platinum chloride**, addition to iodizer, 2812.  
 —, intensifying by, 2824.  
**Platinum tetrachloride**, intensifying by, 2824.  
*Playing cards*, see *Cards, playing*.  
**Plectrums**, celluloid, 2730.  
**Plera**, 2973.  
**Pleuro-pneumonia**, collodion sacs for investigation, cause of, 2785.  
**Plumbates**, producing nitrogen with, 685.  
*Plumbic*, see *Lead*.  
**Plumbites**, oxidizing ammonia by, 897.  
**Plumes**, celluloid, 2711.  
*Pneumoson*, see *Amyl thiotrimethylamine*.  
*Poaching*, see *Cellulose nitrate*.  
**Pocket book**, celluloid, 2717.  
**Pocket clip**, celluloid, 2712.  
**Polarized light**, action on cellulose nitrate, 1757.  
**Polarizers**, collodion film, 2913.  
**Polarization**, cellulose nitrate membranes for, 2913.  
**Polishing**, cellulith wheels for, 338.  
**Polishing composition**, amyl acetate in, 2492.  
**Polychloramidines**, cellulose ester solvent, 2544.  
*Polychrome*, see *Esculin*.  
**Polychrome screens**, 2876.  
*Polychromic acid*, see *Aloetic acid*.  
**Polycyclohexane**, 14.  
**Polyglucoses**, 192.  
**Polyglycerols**, 2389.  
**Polyglycols**, 1849.  
 —, nitrated, 1849, 1870.  
**Polynitrocellulose**, 1693.  
*Polyporus*, 346.  
**Polysaccharide**, cellulose as a, 198, 349.  
**Polysaccharides**, 6, 7, 8.  
 —, pentosans in, determining, 365.  
 —, precipitating cuprammonium cellulose with, 77.  
**Polysaccharoses**, 6.  
**Polysulfates**, manufacture of, 815.  
 —, manufacture from, niter cake, 817.  
**Polythionates**, 1026, 1028.  
*Pomoidea*, 404.  
**Ponolith**, niter cake for manufacture of, 788.  
**du Pont powder**, 2930.  
**P. O. P.**, 2856.  
**Poplar**, ash in, 244.  
 —, cellulose in, 244.  
 —, constants of, 244.  
 —, hydrolyzing, 204.  
 —, lignin in, 244.  
 —, moisture in, 244.  
 —, nitration of, 322.  
 —, pectic matter in, 244.  
 —, protein in, 244.  
**Porcelain**, catalytic action of, 1102.  
 —, pictures on, 2849.  
**Porter process**, 269.  
**Portfolio**, celluloid, 2717.  
**Portolac**, 3080.  
**Poseidonia Australia**, nitrating, 1877, 1880, 1881.  
**Positives**, collodio-chloride, 2856.  
 —, collodion, 2806.  
 —, enameling, 2806.  
 —, enlarging, 2867.  
 —, toning and fixing, 2857.  
**Posts**, hollow, preserving, viscose, 3079.  
**Potash alum**, niter cake for manufacture of, 792.  
**Potassium**, producing nitrogen with, 685.  
**Potassium acetate**, cellulose nitrate decomposition yielding, 1716.  
 —, paint remover containing, 2564.  
 —, smoke reducer in powder, 2984.  
 —, stabilizing cellulose nitrate with, 1703.  
**Potassium ammonium chromate**, nitrostarch stabilizer, 1828.  
**Potassium ammonium citrate**, nitrostarch stabilizer, 1828.  
**Potassium ammonium pyro-tartrate**, nitrostarch stabilizer, 1828.  
**Potassium ammonium tartrate**, nitrostarch stabilizer, 1828.  
**Potassium bichromate**, 2948, 2976.  
**Potassium borate**, smoke reducer in powder, 2984.  
**Potassium cantharidate**, cellulose nitrate with, 2794.  
**Potassium carbonate**, paint remover containing, 2564.  
 —, smoke reducer in powder, 2984.  
**Potassium caseinate**, reducing inflammability celluloid by, 2754.  
**Potassium chlorate**, 132, 2965, 2966, 2971, 2972, 2973, 2975.  
 —, blasting preparation of cellulose nitrate and, 1617.

- Potassium chlorate, explosive of cellulose nitrate and, 1623.  
 —, explosive of nitrostarch and, 1818.  
 Potassium chloride, 2971, 2974.  
 —, absorption of by starch, 439.  
 —, action of, on cotton, 141.  
 —, dissolving cellulose by, 68.  
 —, dissolving cellulose by formic acid and, 110.  
 Potassium chlorplatinate, 733.  
 —, catalyst, 1151.  
 Potassium chloroplatinite, intensifying by, 2024.  
 Potassium chromate, 2948.  
 —, blasting preparation containing, 1617.  
 —, coloring celluloid by, 1896.  
 Potassium citrate, cellulose nitrate solvent of alcohol and, 2388.  
 —, decolorizing old collodion by, 2817.  
 —, restoring collodion by, 2817.  
 —, smoke reducer in powder, 2984.  
 —, stabilizing cellulose nitrate by, 1703.  
 Potassium cyanide, 2823.  
 —, decolorizing old collodion by, 2814, 2817.  
 —, paint remover containing, 2564.  
 —, restoring collodion by, 2814, 2817.  
 Potassium ferrieyanide, intensifying by, 2824.  
 Potassium ferrocyanide, 2833, 2970, 2971.  
 —, action of, on cellulose, 164.  
 —, blasting fuse containing, 1850.  
 —, blasting preparation of, 1617.  
 —, coloring celluloid by, 1896.  
 —, oxycellulose from cellulose and, 164.  
 Potassium fluoride, 2797, 2807, 2810.  
 Potassium formate, cellulose nitrate decomposition yielding, 1716.  
 Potassium hydroxide, decolorizing old collodion by, 2815.  
 —, paint remover containing, 2563.  
 —, restoring collodion by, 2815.  
 —, solubility cotton in, 543.  
 Potassium iodide, 2823.  
 —, coloring celluloid by, 1896.  
 —, dissolving cellulose by, 68, 108.  
 Potassium lactate, cellulose nitrate solvent of alcohol and, 2388.  
 Potassium levulinate, cellulose nitrate solvent of alcohol and, 2388.  
 Potassium mercuric iodide, dissolving cellulose by, 108.  
 Potassium nitrate, 2922, 2945, 2971, 2972, 2973, 2974, 2975.  
 Potassium nitrate, blasting preparation of cellulose nitrate and, 1617.  
 —, cellulose nitrate decomposition yielding, 1716.  
 —, combustion cellulose nitrate and, 1627, 1912.  
 —, explosive of cellulose nitrate and, 1629.  
 —, explosive from sulfite lye and, 287.  
 —, fortifying spent acid by, 1421.  
 —, manufacture of, 946.  
 Potassium nitrite, addition to, iodizer, 2812.  
 —, cellulose nitrate decomposition yielding, 1716.  
 Potassium oleate, 3081.  
 —, paint remover containing, 2565.  
 Potassium osmate, 938.  
 —, catalyst, 1151.  
 Potassium oxalate, cellulose nitrate solvent of alcohol and, 2388.  
 —, reducing inflammability cellulose nitrate by, 1780.  
 —, smoke reducer in powder, 2984.  
 Potassium perchlorate, 723, 2976.  
 Potassium permanganate, 2970.  
 —, action of, on cellulose, 164.  
 —, bleaching cellulose by, 172.  
 —, decolorizing old collodion by, 2817.  
 —, manufacture of amorphous cellulose by, 241.  
 —, oxycellulose from cellulose and, 164.  
 —, restoring collodion by, 2817.  
 Potassium persulfate, action of, on cellulose, 155.  
 —, formation of, 1293.  
 di-Potassium phosphate, 396.  
 Potassium phosphate, development fungi by, 1802.  
 Potassium phosphite, iodizer additive to, 2812.  
 Potassium phthalate, 981.  
 Potassium picrate, explosive of nitrostarch and, 1821.  
 Potassium platinochloride, 2858.  
 Potassium platinochloride, *see* Potassium chlorplatinate.  
 Potassium polysulfide, intensifying with, 2823.  
 Potassium pyrosulfate, 99.  
 Potassium ruthenate, catalyst, 1151.  
 Potassium salts, absorption of, by cellulose, 114.  
 Potassium silicate, 2022.  
 —, fuse of cellulose nitrate and, 1565.  
 Potassium sodium tartrate, 74.  
 Potassium sodium tartrate, 74.

- Sodium potassium tartrate.*  
 Potassium sulfate, catalyst of, 1163.  
 Potassium tartrate, cellulose nitrate solvent of alcohol and, 2388.  
 —, smoke reducer in powder, 2084.  
 —, stabilizing cellulose nitrate by, 1708.  
 Potassium thiocyanate, dissolving cellulose by, 108.  
 Potato peelings, starch from, 461.  
 Potato starch, *see* Starch, potato.  
 Potatoes, preserving, 458.  
 —, rotten, starch from, 460.  
 —, solids in, 456.  
 —, starch in, 446, 457.  
 —, starch from, 457.  
*Potching, see* Poaching.  
 Potentite, 2973.  
 Potepo, 246.  
 Poudre B, 2938, 2942, 2968.  
 —, action ultra-violet light on, 1714, 1763.  
 —, decomposition, gases evolved in, 1784.  
*Poudre-coton, see* Cellulose nitrate.  
 Poultry rings, celluloid for, 2686.  
 Powder, American wood, 1810.  
 —, Bautzen, 1810.  
 —, cellulose nitrate, ballistics of, 2931.  
 —, critical pressure in, 2934.  
 —, Darapsky's yellow, 1811.  
 —, flameless, 1932.  
 —, Fossapo, 2925.  
 —, gelatinized, nitrogen in, determining, 2315.  
 —, indurated, Munroe's, 2251.  
 —, Lanfrey's, 1803.  
 —, Lannoy's white, 1810.  
 —, Punshon, 1620.  
 —, Schultze, 1635, 1808.  
 —, tubular, 2934.  
 Powder, smokeless, cellulose nitrate, 1921, 1930.  
 —, —, mineral residue in, determining, 2369.  
 Powder, strip, 2934.  
 Powder, Walsrode, *see* Walsrode powder.  
 Powder, wood, *see* Wood powder.  
 Powder, *see also* Smokeless powder.  
 Powder bags, manufacture of, 2981.  
 Powder cases, manufacture of, 2781.  
 Powderpuff, celluloid, 2718.  
 Powerite, 2973.  
 Präposit, 2973.  
*Precipitated pyroxilin, see* Cellulose nitrate, precipitated.  
 Precipitator, electrostatic, 231.  
 Prehnitic acid, 236.  
 Preservatives, collodion, 2840.  
 —, dry plate, 2828.  
 Pressure dialysis, collodion films for, 1772.  
 Primer, celluloid, 2607.  
 —, cellulose nitrate and fulminate, 1501.  
 —, nitroerythrite, 1859.  
 Primers, 2981.  
 Printers blankets, cellulose nitrate lacquers for, 2583.  
 Printing, chromotype, 2803.  
 —, oxycellulose for, 178.  
 —, photo-mechanical, 2863.  
 Printing blocks, celluloid, 2746.  
 Printing paper, celluloid, 2748.  
 —, viscose, 3080.  
 Print outs, collodio-chloride, 2856.  
 Prints, squeegeeing, celluloid for, 2907.  
*Procatechuic acid, see* Proocatechin.  
 Projectiles, charring, cellulose nitrate for, 1635.  
 —, explosive, transporting, 1929.  
 Prolamin, cellulose ester solvent, 2550.  
 Promotor, aluminium, 907.  
 —, beryllium, 907.  
 —, chromium, 907.  
 —, magnesium, 907.  
 —, manganese, 907.  
 —, molybdenum, 907.  
 —, niobium, 907, 937.  
 —, palladium, 908.  
 —, tantalum, 907, 937.  
 —, thorium, 907.  
 —, tungsten, 907.  
 —, uranium, 907, 908.  
 —, uranium carbide, 908.  
 —, vanadium, 907.  
 —, zirconium, 907.  
 Promotors, *see also* Catalysts.  
*Propaasin, see* Propyl p-aminobenzoate.  
*Propanenitrile, see* Ethyl cyanide.  
*Propenyl alcohol, see* Glycerol.  
*a-Propenyl dichlorhydrin, see a-Dichlorhydrin.*  
*as-a-Propenylchlorhydrin, see* Monochlorhydrin.  
*Propine, see* Allylene.  
 Propione, 2387, 2401.  
*Propione, see also* Diethyloxime.  
 Propionic acid, 62, 342.  
 —, formation from cellulose, 45.  
 —, paint remover containing, 2563.  
 Propionic ether, *see* Ethyl propional.  
 Propionic glycol, *see* Alanin.  
*Propionitrile, see* Ethyl cyanide.



- Propionylcellulose*, see *Cellulose propionate*.
- Propionylhydrocellulose*, see *Hydrocellulose propionate*.
- Propyl acetate, 419, 1186, 2278, 2504.
- , cellulose nitrate lacquer containing, 2580.
- , cellulose nitrate solvent, 2394.
- , dissolving nitric acid by, 1437.
- , viscosity cellulose nitrate in, 1737.
- Propyl acetylsalicylate, cellulose ester solvent, 2387.
- Propyl alcohol, 419, 2382, 2428.
- , alcohol recovery by, 2558.
- , cellulose nitrate solvent with camphor, 2384.
- , dehydrating cellulose nitrate by, 2125.
- , ether recovery by, 2558.
- , solubility acetic acid in, 2999.
- Propyl allyl ether, 2394.
- iso*Propyl-*p*-nitrobenzoate, cellulose ester solvent, 2537.
- Propylamyl ether, 2385.
- Propyl benzoate, 2387.
- , cellulose acetate solvent, 3035.
- Propyl borate, 2386.
- , reducing inflammability cellulose nitrate by, 1786.
- Propyl brombenzoate, 2387.
- Propyl bromcitrate, 2387.
- Propyl bromhippurate, 2387.
- Propyl bromlactate, 2387.
- Propyl brommesitylenate, 2387.
- Propyl bromnitrobenzoate, 2387.
- Propyl bromnitrocitrate, 2387.
- Propyl bromnitrohippurate, 2387.
- Propyl bromnitrolactate, 2387.
- Propyl bromnitromesitylenate, 2387.
- Propyl bromnitrooxalate, 2387.
- Propyl bromnitrophthalate, 2387.
- Propyl bromnitrosalicylate, 2387.
- Propyl bromnitrosuccinate, 2387.
- Propyl bromnitrotartrate, 2387.
- Propyl bromnitrotoluate, 2387.
- Propyl bromoxalate, 2387.
- Propyl bromphthalate, 2387.
- Propyl bromsalicylate, 2387.
- Propyl bromsuccinate, 2387.
- Propyl bromtoluate, 2387.
- Propyl bromnitrotartrate, 2387.
- Propyl bromnitrotoluate, 2387.
- Propyl bromoxalate, 2387.
- Propyl bromphthalate, 2387.
- Propyl bromsalicylate, 2387.
- Propyl bromsuccinate, 2387.
- Propyl bromtoluate, 2387.
- Propyl butyl ether, 2385.
- Propyl butyrate, 2508.
- , cellulose nitrate solvent, 2394.
- Propyl caproate, cellulose nitrate solvent, 2394.
- Propyl carbamate, cellulose ester solvent, 2536.
- Propyl carbanilate, cellulose ester solvent, 2537.
- Propyl carbonate, cellulose ester solvent, 2536.
- Propyl cellulose, naphthylamyl ether with, 2541.
- Propyl chlorbenzoate, 2387.
- Propyl chlorcitrate, 2387.
- Propyl chlorhippurate, 2387.
- Propyl chlorlactate, 2387.
- Propyl chlormesitylenate, 2387.
- Propyl chlornitrobenzoate, 2387.
- Propyl chlornitrocitrate, 2387.
- Propyl chlornitrohippurate, 2387.
- Propyl chlornitrolactate, 2387.
- Propyl chlornitromesitylenate, 2387.
- Propyl chlornitrooxalate, 2387.
- Propyl chlornitrophthalate, 2387.
- Propyl chlornitrosalicylate, 2387.
- Propyl chlorstearate, cellulose acetate solvent, 3033.
- Propyl chlornitrosuccinate, 2387.
- Propyl chlornitrotartrate, 2387.
- Propyl chlornitrotoluate, 2387.
- Propyl chloroxalate, 2387.
- Propyl chlorphthalate, 2387.
- Propyl chlorsalicylate, 2387.
- Propyl chlorsuccinate, 2387.
- Propyl chlortartrate, 2387.
- Propyl chlortoluate, 2387.
- Propyl citrate, 2387.
- p*-Propyl-*m*-cresol, see *Thymol*.
- Propylene dibromide, see *Propylene bromide*.
- Propylene glycol, 1849.
- Propyleneglycol nitrate, 1849, 1870.
- Propyl ether, 2384, 2385.
- Propyl ether, see also *Dipropyl ether*.
- Propyl ethylene, see *Amylene (n)*.
- Propyl formate, 2499.
- , dissolving nitric acid by, 1467.
- iso*Propyl formate, 2388.
- Propylformic acid, see *Butyric acid*.
- Propyl hippurate, 2387.
- iso*-Propylhydroxy-toluene, see *Carvacrol*.
- Propyl lactate, 2387.
- Propyl linoleate, cellulose nitrate solvent, 2391.
- Propyl mesitylenate, 2387.
- Propyl methyl ketone, 2386, 2397.
- Propyl myristate, cellulose acetate solvent, 3033.
- Propyl nitrate, 2386.
- Propyl nitrite, 2386.
- Propyl nitro benzoate, 2387.
- iso*Propyl-*p*-nitro benzoate, cellulose ester solvent, 2531.
- Propyl nitro citrate, 2387.
- Propyl nitro hippurate, 2387.

- Propyl nitro lactate**, 2387.  
**Propyl nitro mesitylenate**, 2387.  
**Propyl nitro oxalate**, 2387.  
**Propyl nitro phthalate**, 2387.  
**Propyl nitro salicylate**, 2387.  
**Propyl nitro succinate**, 2387.  
**Propyl nitro tartrate**, 2387.  
**Propyl nitro toluate**, 2387.  
**Propyl oleate**, cellulose ester solvent, 2536.  
 —, cellulose nitrate solvent, 2391.  
**Propyl oxalate**, 2387.  
 —, cellulose ester solvent, 2536.  
**Propyl oxamate**, cellulose ester solvent, 2536.  
**Propyl palmitate**, cellulose acetate solvent, 3033.  
 —, cellulose ester solvent, 2536.  
 —, cellulose nitrate solvent, 2391.  
**Propyl phthalate**, 2387.  
***α-Propyl-piperidine***, see *Contine*.  
**Propyl propionate**, 2507.  
 —, cellulose nitrate solvent, 2394.  
 —, dissolving nitric acid by, 1467.  
 —, solubility, 2489.  
**Propyl ricinoleate**, cellulose nitrate solvent, 2391.  
**Propyl silicate**, reducing inflammability cellulose nitrate by, 1787.  
**Propyl stearate**, cellulose ester solvent, 2536.  
 —, cellulose nitrate solvent, 2391.  
**Propyl salicylate**, 2387.  
**Propyl stearate**, cellulose acetate solvent, 3033.  
**Propyl succinate**, 2387.  
**Propyl tartrate**, 2387.  
**Propyl toluate**, 2387.  
***p-Propyl-toluene***, see *Cymene*.  
***Propyl urethane***, see *Propyl carbamate*.  
**Propyl valerate**, cellulose nitrate solvent, 2394, 2509.  
 —, dissolving nitric acid by, 1467.  
**Pro spirit**, 2409.  
**Prostine**, 1782, 2669.  
**Protectaline**, 2904.  
**Protective cotton**, 1693.  
**Protectone**, 2795.  
**Proteids**, cellulose ester solvent, 2550.  
**Proteid-viscose**, 3081.  
***Protein amyloid***, see *Amyloid*.  
**Proteins**, cotton containing, 522.  
 —, chloramine reaction of, 349.  
 —, hydrolyzing, hydrofluoric acid for, 202.  
 —, linen containing, 523.  
***Protocatechin methyl ether***, see *Gyaiacol*.  
**Protocatechuic acid**, 520.  
 —, absorption of, by cellulose, 63.  
 —, formation of, from cellulose, 45.  
**Protocatechuic aldehyde**, cellulose ester solvent, 2548.  
 —, pyrocondensation, 2256, 2074.  
 —, classification of, 1690.  
 —, solubility of, 1690.  
 —, yield from cotton, 573.  
**Protocellulose**, 350.  
**Protol**, 2670.  
**Protozoa**, cellulose in, 329.  
***Prunoides***, 404.  
***Prussic acid***, see *Hydrocyanic acid*.  
**Pseudobutyrate**, 1783.  
***Pseudo-compounds***, see *pseudo-Compounds*.  
***Pseudocumene***, see *Cumene*, *pseudo*.  
***Pseudocumol***, see *Cumene*.  
***Pseudo mauveine***, see *pseudo-Mauveine*.  
**Pseudorcin**, 1856.  
***Pseudosuga latifolia***, composition of, 261.  
**Psycholoid**, 2745.  
**Ptyalin**, 314.  
 —, activity of in presence cellulose nitrate, 1770.  
 —, action of, on cellulose, 347.  
 —, on starch, 4, 6.  
**Puffed carbohydrates**, nitrating, 1849.  
**Pulegone**, cellulose ester solvent, 2543.  
**Pulmonary appliances**, celluloid, 2712.  
**Pulp**, sizing, niter cake for, 799.  
 —, soda wood, hydrolysis of, 212.  
 —, sulfate, refining, 289.  
 —, sulfite, refining, 289.  
***Pulp***, see also *Wood pulp*.  
**Pulper**, Hoyt-Horne, 2092.  
**Pulp refiners**, 2092.  
***Pulsilla***, see *Angemonin*.  
**Pulsometer**, 1275.  
**Pulverloid**, 2670.  
**Pumice**, platitized, 1104, 1190.  
**Pump**, centrifugal, Kynoch, 118.  
 —, Rees Roturbo, 1178.  
 —, sulfuric acid, Nash, 831.  
 —, vacuum, Nash, 829.  
**Pumps**, vacuum, pistons of, packing for, 825.  
**Pump**, vacuum, sulfuric acid, Nash, 831.  
**Pump clips**, celluloid, 2698.  
**Punshon powder**, 1620.  
***Purreic acid***, see *Euxanthic acid*.  
**Pus-cups**, celluloid, 2742.  
**Puzzles**, celluloid, 2728.

- Pyralin, 1887.  
 Pyraline, 1894.  
 Pyranthrones, 174.  
 Pyrantin, 1894.  
 Pyrazine hexahydride, *see* Piperazine.  
 Pyrheliometer, compensating, 2495.  
 Pyridine, 107, 495, 1717, 1860, 1866, 2369.  
   —, catalyst, 1886.  
   —, cellulose acetate solvent, 3040.  
   —, cellulose nitrate gelatinizer, 1679.  
   —, determining mineral residue in powder by, 2369.  
   —, estimating methyl iodide by, 370.  
   —, manufacture cellulose carbamate with, 324.  
 Pyridine benzoate, cellulose nitrate solvent, 2394.  
 Pyridine carbonic acid (2), *see* Picolinic acid (2).  
*a*-Pyridine-carbonic acid, *see* Picolinic acid.  
*m*-Pyridine-carbonic acid, *see* Nicotinic acid.  
 Pyridine citrate, cellulose nitrate solvent, 2804.  
 Pyridine dicarbonic acid, (2,3), *see* Quinolinic acid.  
 Pyridine levulinate, cellulose nitrate solvent, 2394.  
 Pyridine phthalate, cellulose nitrate solvent, 2394.  
 Pyridine sebacate, cellulose nitrate solvent, 2394.  
 Pyridine succinate, cellulose nitrate solvent, 2394.  
 Pyridine sulfate, acetating cellulose *see* presence of, 3010.  
 Pyridine tartrate, cellulose nitrate solvent, 2394.  
 Pyridinetricarbonic acid, *see* Pyridinetricarboxylic acid.  
 Pyridine tricarbonic acid (2, 4, 5), *see* Berberonic acid.  
*α*-Pyridone, *see* Hydroxy-pyridine (2).  
*β*-Pyridone, *see* Hydroxy-pyridine (3).  
*γ*-Pyridone, *see* Hydroxy-pyridine (4).  
 Pyrites, 1043.  
   —, analysis, 1046, 1048.  
   —, analysis of, copper in, 1052, 1055.  
   —, —, gravimetric, 1051, 1055.  
   —, —, iron in, 1052.  
   —, —, moisture, 1051.  
   —, —, selenium in, 1056.  
   —, —, sulfur in, 1083.  
   —, —, volumetric, 1050.  
   —, —, zinc in, 1055.  
   —, arsenic in, determining, 1054.  
   —, Australian, 1049.  
   —, Belgian, 1044, 1047.  
   —, British, composition, 1046.  
   —, burner, dust catcher, 1074.  
   —, —, Herreshoff, 1072.  
   —, —, MacDugal, 1072.  
   —, —, rotary, 1213.  
   —, —, Wedge, 1072.  
   —, burners, 1070.  
   —, burner gas from, composition of, 1238.  
   —, burning, 1070.  
   —, —, air drying tower for, 1185.  
   —, —, composition gases, 1082.  
   —, —, reaction in, 1074.  
   —, calcium carbonate in, determining, 1055.  
   —, calcium sulfate in, determining, 1055.  
   —, calorific value of, 1043.  
   —, Canadian, composition of, 1049.  
   —, catalyst, 917.  
   —, cinders, sulfur in, 1050.  
   —, composition of, 1043, 1046.  
   —, —, Austrian, 1046.  
   —, —, Belgian, 1047.  
   —, —, Bohemian, 1047.  
   —, —, French, 1047.  
   —, —, German, 1046.  
   —, —, Norwegian, 1047.  
   —, —, Portuguese, 1048.  
   —, —, Russian, 1047.  
   —, —, Spanish, 1048.  
   —, —, Swedish, 1047.  
   —, —, Swiss, 1047.  
   —, concentration, magnetic, 1046.  
   —, copper, smelting, 1075.  
   —, —, sulfur dioxide from, 1075.  
   —, copper in, determining, 1052, 1055.  
   —, crushers for, 1184.  
   —, deposits of, 1046.  
   —, evaluation of, 1049.  
   —, exports, 1045.  
   —, French, 1044, 1047.  
   —, imports, 1045.  
 Pyrites, iron, *see* Pyrites.  
   —, iron in, determining, 1052.  
   —, Italian, 1044, 1047.  
   —, lead in, determining, 1055.  
   —, lump, burning, 1071.  
   —, lump burners, 1070.  
   —, magnetic, determination of, 1050.  
   —, Newfoundland, composition of, 1049.  
   —, non-cupreous, 1048.  
   —, Norwegian, 1044.  
   —, occurrence, 1046.  
   —, Portuguese, 1044.  
   —, —, analysis of, 1044.

- Pyrites, powder, burning,** 1071.  
 —, **production,** 1044.  
 —, **Rio Tinto, analysis of,** 1048.  
 —, **roasting,** 1074.  
 —, —, **cinder from, composition of,** 1074.  
 —, **sampling,** 1051.  
 —, **San Domingo, analysis of,** 1048.  
 —, **seleniferous,** 1349.  
 —, —, **"smalls," burning,** 1071.  
 —, **Spanish,** 1044.  
 —, —, **composition of,** 1048.  
 —, **statistics,** 1044.  
 —, **sulfur from,** 1024, 1400.  
 —, **sulfur in, determining,** 1042, 1046, 1050, 1053.  
 —, **sulfur dioxide from,** 1058.  
 —, **sulfuric acid from,** 1043, 1044.  
 —, **Tharsis, composition of,** 1048.  
 —, **transporting,** 1049.  
 —, **United States, analysis of,** 1049.  
*Pyro, see Pyrogallol.*  
**Pyroborates,** 2528.  
*Pyrocatechin, see Pyrocatechol.*  
**Pyrocatechol,** 45, 265, 411, 520, 2858.  
 —, **absorption of, by cellulose,** 63.  
 —, **action on lignocellulose,** 262.  
 —, **cellulose ester solvent,** 2550.  
 —, **formation from distillation paper,** 44.  
 —, **reaction with lignocellulose,** 262.  
**Pyrocatechol diethyl ether, cellulose ester solvent,** 2543, 3029.  
**Pyrocotton powder,** 2942.  
**Pyrocotton,** 1693.  
*Pyrocin, see Acetylphenylhydrazine.*  
**Pyrodine,** 2428.  
*Pyrogallol, see Pyrogallol.*  
**Pyrogallol,** 411, 1883, 2858, 3034.  
 —, **absorption cellulose by,** 63.  
 —, **action on lignocellulose,** 262.  
 —, **cellulose acetate softener,** 3042.  
 —, **cellulose ester solvent,** 2550.  
 —, **cellulose nitrate and,** 2792.  
 —, **developer,** 2821.  
 —, **dry plate preservative,** 2828.  
 —, **estimating oxygen by alkaline,** 1083.  
 —, **intensifier,** 2823.  
 —, **intensifying by,** 2824.  
 —, **photographic developing by,** 2818.  
 —, **preserving collodion emulsions by,** 2846.  
 —, **reaction with lignocellulose,** 262.  
*Pyrogallol carboxylic acid, see Trihydroxybenzoic acid.*  
**Pyrogallol triacetate, cellulose acetate solvent,** 3034.  
**Pyrogallol triacetate, manufacture of,** 3034.  
**Pyrogallol triacetate, rearrangement of,** 3034.  
**Pyroligneous acid, purifying, niter cake for,** 303.  
*Pyroligneous acid, see also Acetic acid.*  
*Pyroligneous spirit, see Methyl alcohol.*  
*Pyroligneous spirits of alcohol, see Methyl alcohol.*  
*Pyrolignite of lime, see Calcium acetate.*  
**Pyropaper,** 1694, 1816, 1867.  
**Pyrophoric mixture, catalyst,** 918.  
*Pyrophosphoric acid, see Phosphoric acid.*  
**Pyromellitic acid,** 236.  
*Pyromucic aldehyde, see Furfural.*  
**Pyro-powder,** 2968.  
*Pyroracemic acid, see Pyruvic acid.*  
**Pyrosa,** 2670.  
**Pyrosilicates,** 2528.  
**Pyrosulfates,** 1292.  
 —, **properties,** 1293.  
**Pyrosulfuric acid,** 1291, 1292.  
 —, **properties of,** 1293.  
*Pyrosulfuric acid, see also Oleum.*  
**Pyrosulfuryl chloride, acetating cellulose in presence of,** 3011.  
**Pyrotechnic, cellulose nitrate,** 1617.  
**Pyrotechnic, cellulose nitrate for,** 1887.  
**Pyrotechnic composition, cellulose nitrate in,** 1617.  
**Pyrotechnic serpentine, cellulose nitrate,** 1639.  
**Pyrotechnics, cellulose nitrate in,** 2983.  
*Pyrotritaric acid, see Uvic acid.*  
*Pyroxam, is Pyroxylam.*  
**Pyroxylam,** 1599.  
**Pyroxyle,** 1598, 1693.  
*Pyroxyle, see also Cellulose nitrate.*  
**Pyroxylic spirit,** 2409.  
*Pyroxylic, see also Methyl alcohol.*  
**Pyroxylid,** 2669.  
**Pyroxylin,** 1693, 2839.  
 —, **classification,** 1691.  
 —, **constants of,** 1691.  
 —, **derivation of,** 1570, 1578.  
 —, **description of,** 1690.  
 —, **low-nitrogen,** 1882.  
 —, **parchmentized,** 1644.  
 —, **Pharmacopoeal,** 1694.  
 —, **photographic,** 2839.  
 —, **properties of,** 1696.  
 —, **solubility of,** 1691, 1696.  
*Pyroxylin, see also Cellulose nitrate.*  
*Pyroxylin, see also Guncotton.*  
**Pyroxylin gum,** 2803.  
**Pyroxylin lacquer, Doerflinger formula,** 2402.

- Pyroxylin lacquers, 2381.  
 —, mercerizing finish of, 231.  
 Pyroxylin plastics, auto-combustion of, 1705.  
*Pyroxylin plastics, see also Celluloid.*  
*Pyroxylin plastics, see also Plastics, cellulose nitrate.*  
 Pyroxyfinum, 1696.  
 Pyroxytol, 1693.  
 Pyrrhonte, 1043, 1298.  
 Pyrrol, reaction with lignocellulose, 262.  
*Pyruvic acid (hydroxy)†, see Hydroxy-pyruvic acid.*  
  
 Quartz, articles of, manufacturing, 1365.  
 —, clarifying spent acid by, 1413.  
 —, fused, concentrating acid in, 1361.  
 —, reducing inflammability cellulose nitrate by, 1787.  
 Quartzite, tower packing of, 1270.  
 Quassia, dry plate preservative, 2828, 2834.  
 Quassia camphor, dry plate preservative, 2828.  
 Queensland cotton, constants of, 506.  
 Quercetin, 495, 501.  
 Quercimeritrin, 496, 501.  
 Quercin nitrate, 1848.  
 Quercinit nitrate, 1848.  
 Quercite, 1866.  
 Quercite acetate, 184.  
 Quercite pentanitrate, 1866.  
*d-Quercit pentanitrate, 1848.*  
*Quercilannin, see Quercilannic acid.*  
*iso-Quercitrin, 495, 501.*  
*Quercitlime, see Calcium oxide.*  
 Quills, artificial, celluloid for, 2695.  
 —, —, cellulose nitrate for, 2610.  
*Quinaldine, see Methyl quinoline (2).*  
*Quinaseptol, see Diaphthol.*  
 Quince seed, dry plate preservative, 2834.  
 Quifidine, preserving collodion emulsions by, 2846.  
 Quinidine acetate, preserving collodion emulsions by, 2846.  
 Quinine, increasing solubility resins by, 2593.  
*o-Quimite-(di)acetate, 184.*  
 Quinoline, 1860.  
 —, cellulose acetate solvent, 3040.  
 Quinoline citrate, cellulose nitrate solvent, 2394.  
 Quinoline benzoate, cellulose nitrate solvent, 2394.  
 Quinoline levulinate, cellulose nitrate solvent, 2394.  
 Quinoline red, 2874.  
 Quinoline phthalate, cellulose nitrate solvent, 2394.  
 Quinoline sebacate, cellulose nitrate solvent, 2394.  
 Quinoling succinate, cellulose nitrate solvent, 2394.  
 Quinoline tartrate, cellulose nitrate solvent, 2394.  
 Quinone, cellulose ester solvent, 2543.  
*(Quinone monoxime, see Nitrosophenol (p)).*  
 Quinquina, dry plate preservative, 2828.  
 Quoits, celluloid, 2728.  
  
 Racquets, tennis, celluloid for, 2728.  
 Radiateur, 1384.  
 Radioactive material, catalyst of, 1111.  
 Radium, action on cellulose, 61.  
 —, ionizing gases by, 1392.  
 —, protecting from by celluloid, 2742.  
 Raffia, acetylation of, 333.  
 —, cellulose from, 332.  
 —, benzooylation of, 333.  
 —, nitration of, 333.  
 Raffinose, 7.  
 —, nitrating, 1845.  
 Raffinose undecanitate, 1848.  
 Rags, nitrated, 1623.  
*Rags, nitrogenized, see Cellulose nitrate.*  
 Raisins, dry plate preservative, 2834.  
 Ramie, artificial filaments from, 336.  
 —, ash in, 244.  
 —, cellulose in, 244.  
 —, cellulose from, 328.  
 —, constants of, 244.  
 —, density of, 1756, 1760.  
 —, depolarization of, 1760.  
 —, dialysis, 1760.  
 —, dichroism of, 49.  
 —, lignin in, 244.  
 —, mineral constituents of, 524.  
 —, modifying, high temperatures for, 43.  
 —, moisture in, 244.  
 —, nitrated, 1740.  
 —, —, density, 1756.  
 —, nitrating, 1875, 1878.  
 —, optical activity, 1760.  
 —, oxidation of, 169.  
 —, pectic matter in, 244.  
 —, protein in, 244.  
 —, refraction, 1760.  
 Ramma, 246.  
 Ramo, 246.  
 Randanite, absorbing nitric acid in, 948.

- Rangoon cotton, constants of, 500  
 Rapid developing salt, 2821.  
*Rapinic acid*, see *Rapic acid*.  
 Raspberry syrup, dry plate preservative, 2828.  
 Rhatany, dry plate preservative, 2828.  
 Ray filter, Eastman, 2877.  
 Ray filters, 2875.  
 Razor blade, celluloid, 2712.  
 Razor handle, celluloid, 2718.  
 Reaction towers, 1217.  
 —, packing for, 1267.  
 Reagents, action of on cotton, 529  
*Records*, phonograph, see *Phonograph records*.  
 Rectal appliances, celluloid, 2742  
 Red cotton, constants of, 505  
 Red fir, composition of, 261.  
 Redmanol, 2767.  
 Red ochre, 2971.  
 "Red rust," 345.  
 Red spruce, composition of, 260  
 Redwood, composition of, 258.  
 "Redwood" tree, 278.  
 —, wood pulp from, 278.  
 Redwood viscosimeter, 2275  
 Regd, membrane, 1770  
 Rees Roturbo pump, 1178  
*Refined fusel oil*, see *Fusel oil, refined*.  
 Refining engine, auxiliary, 2094  
 Refraction, cause of in textile fibers, 48.  
 Refrigerating, sulfur dioxide for, 1099  
 Regulus metal, action sulfuric acid on, 1323.  
 Reflectors, cellulose acetate, 3050  
 Reich's method determining  $SO_2$ , 1083.  
 Reich test, 1327.  
 Reinsch test, 1334  
 Reliefs, celluloid, 2917.  
 Rennet, activity of in presence cellulose nitrate, 1770.  
 Replicas, diffraction grating, 2911.  
 Reservoir device, celluloid, 2717.  
 Resin, 2975.  
 —, acetone as solvent of, 2400  
 —, ammoniacal, iodizer addition, 2813.  
 —, co-nitration of starch and, 1819.  
 —, dinitrated, 1869.  
 —, dry plate preservative, 2829.  
 —, estimation in cellulose, 359.  
 —, explosive of nitrodextrin and, 1854.  
 —, extraction of, from wood, 289.  
 —, lacquers of cellulose nitrate and, 2590.  
 Resin, nitrated, 2248  
 —, nitration of, 1871  
 —, nitration starch and, 2255  
 —, plastic of vulcanized fiber and, 106.  
 —, substitute for, sulfite lye as, 283  
 —, trinitrated, 1869  
 —, effect of, on viscosity cellulose nitrate, 1739  
 —, gold leaf with, 2588  
 —, mercerizing finish of, 232  
 —, —, nitrated, 1869  
 —, clarifying liquids by, 1870.  
 —, preserving collodion emulsions by, 2817  
 —, sulfur dioxide as solvent for, 1069, 1099.  
 —, wood pulp containing, 288  
 Resmates, reducing inflammability cellulose nitrate by, 1786.  
 Resmit, 2705  
 Resmolates, Amyl acetate substitute, 2582  
 Resmolates, reducing inflammability cellulose nitrate by, 1786.  
 Resin soap, decreasing inflammability cellulose nitrate with, 1784.  
*Resorcin*, same as *Resorcinol*  
 Resoremol, 411, 1883  
*di Resoremol*, 366  
 Resoremol, absorption of, by cellulose, 63  
 —, action on lignocellulose, 262  
 —, cellulose acetate solvent, 3020, 3042  
 —, cellulose ester solvent, 2547, 2550  
 —, reaction lignocellulose with, 262, 263  
 Resoremol diacetate, 3059.  
 —, cellulose acetate solvent, 3034.  
 —, cellulose ester solvent, 2539.  
 Resoremol formaldehyde, synthetic amber by, 2721  
 Resorecinol monoacetate, cellulose acetate solvent, 3034.  
*Resorecinol pthalin*, see *Fluorescing Resorecylic acid*, see *Dihydroxy-benzic acid* (2,6).  
 Reproduction technique, cellulose nitrate for, 2381  
 Reproduction work, celluloid and, 2746  
 Respirator, celluloid, 2741.  
*Revivification*, see *Mixed acid, fortifying*.  
 Rhamnodulcific trinitrate, 1846.  
 Rhamnoheptose, 7.  
 Rhamnohexose, 7.  
 Rhamnooctose, 7.

- Rhamnose 7.  
 Rhamnose tetranitrate, 1846.  
 Rhamnose trinitrate, 1846.  
 Rhamnotriose, 7.  
*Rhatany*, see also *Extract Rhatany*.  
 Rhea, cellulose from, 328.  
 —, nitrating, 1875.  
 Rheb. n. a. c. l. o. d. n., 2795.  
 Rhexite, analysis of, 1636.  
*Rhodallin*, see *Thiosinamine*.  
 Rhodamine B. leuco bases of, 2884.  
 Rhodamine 3B, leuco bases of, 2884.  
 Rhodamine 6G, leuco bases of, 2884.  
 Rhodose, 7.  
 Rhodium, action sulfuric acid on, 1319.  
 —, oxidizing ammonia by, 912.  
 Rhoduline heliotropé, 166.  
 —, dyeing cellulose acetate with, 3055.  
*Rhus vernicifera*, 2400.  
 Ribbe accumulator, celluloid for, 2658.  
 Ribbon, imitation, 2381.  
 Ribose, 7.  
 Rice, starch from, 447.  
 —, starch in, 462.  
*Rice starch*, see also *Starch, rice*.  
 Ricinus, purifying cotton by, 562.  
 Ridge furnace, 1079.  
 Rifle, Krag, 2930.  
 Rifleite, 1810, 2962, 2974.  
 Rifleite powder, 2930.  
 Ring protector, celluloid, 2712.  
 Ring stoppers, celluloid, 2688.  
 Rings, celluloid, 2712.  
 —, hollow, celluloid for, 2686.  
 Rio Grande cotton, constants of, 505.  
 Rio Linto ore, 1048.  
 Rippite, 2974.  
 Roanokes cotton, constants of, 505.  
 Roberts gun, 1573.  
*Rochelle salt*, see *Sodium potassium tartrate*.  
*Rochelle salt*, see *Potassium sodium tartrate*.  
 Rock crystal, cellulose nitrate for protecting, 1762.  
*Rock crystal*, see also *Quartz*.  
*Rodinal*, see *Aminophenol(p)*.  
 Rodite, 2705.  
 Rods, celluloid, 2688.  
 Roentgen rays, action of, on cellulose nitrate, 1762.  
 —, cellulose nitrate screen for, 2912.  
 —, testing bombs by, 1762.  
 Roll sulfur, 1033.  
 Rollers, surfacing of, cellulose nitrate for, 2611.  
 Roslyn smokeless powder No. 1, 2974.  
 Rolls, viscose, 3080.  
 Roots, pectocellulose in, 8.  
 Rope, nitrating, 1582.  
 Rosaniline, 2871, 2941, 2963.  
*Rosaniline*, see also *Fuchsin*.  
 Rosaniline acetate, 2346.  
*Rosaurine*, see *Rosolic acid*.  
*Roseine*, see *Fuchsin*.  
 Rosin, co-nitration of, starch and, 1827.  
 —, determining in turpentine, 2571.  
 —, niter cake as precipitant of, 791.  
 —, nitrated, 1869.  
 —, paint remover containing, 2565.  
 Rosin oil, cellulose nitrate containing, 2593.  
 Rosin soap, 806.  
 Rosin soaps, cellulose ester solvent, 2541.  
 Rosin spirit, turpentine substitute containing, 2569.  
*R O V.*, see *Sulfuric acid*.  
 Rotatory power, cellulose, 49.  
*Rotatory*, see also *Specific rotatory power*.  
 Rottweil powder, 2974.  
 —, combustion, products of, 1800.  
 Rough cotton, constants of, 505.  
 Roxylite, 1694.  
*R. R. Rottweil*, see *Rottweil powder*.  
 Rubber, addition to, iodizer, 2813.  
 —, cellulose nitrate and, 2925.  
 —, cellulose nitrate lacquer containing, 2593.  
 —, combining cellulose with, 335.  
 —, storage, acids in vessels coated with, 958.  
 —, substitutes for, cellulose nitrate for, 2599.  
 —, substitute for, cellulose nitrate and phosphorus chloride (s), 1619.  
 —, —, cuprammonium cellulose as, 78.  
 —, synthesis of, amyl alcohol for, 2669.  
 —, viscose and, 3081.  
 —, waterproofing cellulose nitrate with, 1618.  
 Rubber foam, 3060.  
 Rubber goods, acetone in manufacture of, 2400.  
 Rubber set, 2713.  
*Rubin*, see *Fuchsin*.  
*Rufigallol*, see *Rufigallol acid*.  
 Rusponi, 2795.  
 Rusilita, 2874.  
 Russia, artificial silk industry in,

2652.  
 Ruthenates, catalytic action of, 115  
 Ruthenium, catalyst, 916.  
*Rubic acid*, see *Caproic acid*.  
 Rye, drying, 636.
- Sabulifer, 2953.  
 Saccharic acid, 139, 1600.  
*iso*-Saccharic acid, 136, 172.  
*iso*-Saccharic acid, oxycellulose yielding, 15.  
 Saccharic acid-ethyl ester-(tetra)acetate, 184.  
 Saccharification, 994.  
*iso*-Saccharinic acid, cellulose nitrate decomposition product, 1708.  
 Saccharobioses, 6.  
 —, precipitating cuprammonium cellulose with, 77.  
*Saccharo-colloids*, see *Polysaccharides*.  
*Saccharolactic acid*, see *Mucic acid*.  
 Saccharose, 67, 398.  
 —, chlorhydrin as solvent for, 1849.  
 Saccharose hepta-acetate, cellulose ester solvent, 2549.  
 Saccharose mono-acetate, cellulose ester solvent, 2549.  
 Saccharose octo-acetate, cellulose ester solvent, 2549.  
 Saccharose octonitrate, 1847.  
 —, see also *Nitro-saccharose*.  
 Saccharose tetra-acetate, cellulose ester solvent, 2549.  
 Sacs, celloidin, 2784.  
 —, —, cellulose nitrate, 1768, 2784.  
 —, —, dialysis with, 2785.  
 —, manufacture of, 2785.  
 Safflower, 2875.  
 —, dry plate preservative, 2834.  
 Saffranin, dyeing cellulose acetate with, 3055.  
 Saffron, 2875.  
 Safranin, 141, 170, 498, 520.  
 Saffrol, 2392, 2394.  
 Sagus, starch in, 405.  
 Saint Louis cotton, constants of, 505.  
 Saint Marc powder, 2975.  
*Salacchin*, see *Acetylsalicylic acid*.  
*Salantol*, see *Salacetol*.  
*Salenixum*, 787.  
*Salatin*, see also *Acetazol*.  
*Salicylacetol*, see *Salacetol*.  
*Salicylaldehyde*, amyl acetate substitute, 2582.  
*Salicylaldehydemeethylphenylhydrazine*, see *Agathin*.  
*Salicylic acid*, 2821.  
 —, absorption of, by cellulose, 63.  
 —, cellulose nitrate and, 2794.  
*Salicylic acid*, coloring cellulosoid by, 1896.  
 —, making diphenylamine test by, 2360.  
 —, paint remover containing, 2563.  
 —, testing nitric acid by, 964.  
*Salicylic aldehyde*, see *Salicylous acid*.  
*Salicylic ether*, see *Ethyl salicylate*.  
*Salicylic ether of  $\alpha$ -naphthol*, see *Alphol*.  
*Salicyloxyacetic acid*, see *Salicylactic acid*.  
 Saligenin, cellulose acetate softener, 3042.  
 —, cellulose acetate solvent, 3028.  
*Saligenin*, see also *Hydroxy-benzyl alcohol (o)*.  
*Salinaphthol*, see *Betol*.  
 Saline solutions, permeability, of cellulose nitrate by, 1768.  
 Salipyrin, cellulose ester solvent, 2545.  
*Salit*, see *Bornyl salicylate*.  
 Salite, 2976.  
*Salithymol*, see *Thymol salicylate*.  
*Salitre*, see *Sodium nitrate*.  
 Saliva, action of, on cellulose, 344, 347.  
 —, —, on starch, 416.  
 Salol, camphor with, 2517.  
 Salol, cellulose ester solvent, 2538.  
 —, cellulose nitrate and, 2791.  
*Salol*, see also *Phenyl salicylate*.  
 Salt, rapid developing, 2821.  
 Salt cake, 787.  
 —, niter cake for manufacturing, 797.  
 —, niter cake as substitute for, 807.  
 —, sulfuric acid for manufacture of, 1350.  
 Saltpeter, calcareous, comminuting, 730.  
*Saltpeter*, see *Potassium nitrate*.  
*Saltpetre*, see *Potassium nitrate*.  
 Salts, action of, on cellulose, 111.  
 Salubrine, 2385.  
 Samsonite, 2974.  
 Sandarac, 1739, 2876.  
 —, cellulose nitrate, lacquer containing, 2592.  
*Sandarac*, see also *Resins*.  
 Sandholite, 1851.  
 Sansevieria, nitrating, 1877, 1880.  
 Santalal alloprenate, 2391.  
 Santalol ethoxyacetate, cellulose ester solvent, 2539.  
 Santalol ethoxychloracetate, cellulose ester solvent, 2539.  
 Santalol methoxyacetate, cellulose ester solvent, 2539.



- Santalol methoxychloracetate, cellulose ester solvent, 2539.  
 Santos cotton, constants of, 505.  
 Santyl, *see* *Santalyl salicylate*.  
 Saponin, 439.  
 —, effect collodion membrane on, 1770.  
 —, nitration of, 1569.  
 Sateen tissue breaking strain of, 528.  
 —, tenacity of, 529.  
 Salivic acid, *see* *Tetraoxystearic acid*.  
 Satolite, 2669.  
 Sattenole, 2607.  
 Saturex, 1384, 1397.  
 Sausage casing, viscose for, 3082.  
 Savin, cellulose nitrate and, 2792.  
 Sawdust, acetone from, 2396.  
 —, alcohol from, 206, 281, 287.  
 —, distillation of with NaOH, 58.  
 —, ethyl alcohol from, 281.  
 —, nitrated, 1872, 2661.  
 —, nitration of, 1560.  
 —, preparation wood pulp from, 269.  
 —, sugar from, 206.  
 Sayboldt viscosimeter, 2275.  
 Scales, fish, artificial pearl from, 2589.  
 Scalpettes, celluloid, 2702.  
 Scinde cotton, constants of, 506.  
 —, diameter of fibers, 508.  
 —, length of fibers, 509.  
 Screen, celluloid, 2878.  
 Screen plates, 2876.  
 —, polychromatic grain, 2876.  
 Screens, polychrome, 2876.  
 Schiessbaumwolle, 1580.  
 Schiesswolle, 1575.  
 Schiff's reagent, 170, 1672.  
 —, composition of, 1661.  
 Schist, aluminous, sulfuric acid from, 1297.  
 —, extraction sodium nitrate from, 729.  
 Schlippe's salt, intensifying by, 2824.  
 Schloesing method nitrogen determination, 2313.  
 Schönherr furnace, 853.  
 Schreiner finish, 227.  
 —, cellulose nitrate for, 2596.  
 Schroeder-Grillo process, *see* *Sulfuric acid manufacture of*.  
 Schultze granulated wood powder, 1620.  
 Schultze Gunpowder, 1809.  
 Schultze powder, 1635, 2051, 2927, 2969.  
 —, stability determining, 2328.  
 —, velocity of, 1633.  
 Schultze White Cannon powder, 1809.  
 Schwab powder, 2942, 2974, 2975.  
 Schweizer's solution, 69.  
 Scillite hexacetate, 185.  
 Scopolamine, *see* *Hyoscyne*.  
 Screen, diaphragm, 2112.  
 —, —, Downingtown, 2112.  
 —, focussing, celluloid, 2917.  
 —, multicolor, Pierman, 2879.  
 —, Packer, 2102.  
 —, photo, celluloid for, 2748.  
 —, rocking, 2104.  
 —, transparent celluloid, 2703.  
 Screening, *see* *Cellulose nitrate, manufacture of*.  
 Scyllit nitrate, 1848.  
 Sea-island, edisto cotton, length of fibers, 509.  
 Sea-Island cotton, diameter of fibers, 508.  
 Sea Island cotton, *see also* *Cotton, Sea Island*.  
 Sealing bottles, *see* *Bottles, capping*.  
 Sea mines, stationary, cellulose nitrate for, 2186.  
 Seaweed, acetone from, 2397.  
 —, acetic acid from, 2997.  
 —, alcohol from, 2426.  
 Sebacic ether, *see* *Ethyl sebacate*.  
 Sebacinu acid, *see* *Sebacic acid*.  
 Sebacinic ether, *see* *Ether sebacate*.  
 Sebacylic acid, *see* *Sebacic acid*.  
 Sebacylic ether, *see* *Ethyl sebacate*.  
 Sebastin, 2976.  
 Secalin nitrate, 1848.  
 Secalose nitrate, 1848.  
 Sections, collodionization of, 2783.  
 Securite, 2669.  
 —, compressed, 2970.  
 Sedeline, *see* *Antipyrine*.  
 Selenic acid, 1349.  
 Selenium, analysis, in pyrites, 1056.  
 —, catalyst of, 1401.  
 —, catalyst inhibitor, 905.  
 —, contact poison, 1158.  
 —, detection, 1335.  
 —, determining of, 1349.  
 —, determining, in brimstone, 1039.  
 —, estimation, 1336.  
 —, Japanese sulfur containing, 1037.  
 —, recovery of, 1349.  
 —, recovery in sulfuric acid manufacture, 1310.  
 —, tests for, 1335.  
 Selenium compounds, catalyst, 1122.  
 Semin, 7.  
 Sennit pentanitrate, 1848.  
 Sensitive cotton, 1643.  
 Sensitive tissue, 2887.  
 Sensitizers, chromatic, 2871, 2872.  
 Sensitizing, color, 2873.

- Sensitizing fabrics, 2847.
- Sensitizing leather, 2847.
- Separators, battery, cellulose nitrate for, 1698, 1766, 1888, 1893.
- Sericose, L., see Sericose.*
- Serpentine, 955.
- Serpentines, pyrotechnic, cellulose nitrate, 1639.
- Serum, action on starch, 417.
- Serum albumin, 125.
- Setoloid, 2669, 2892.
- Settling tanks, 2068.
- Shale, alum, sulfuric acid from, 1297.
- 'Sheave,' 249.
- Sheep, solubility cellulose in saliva of, 345.
- Sheet films, see Films and Films, photographic.*
- Sheets, cellulose acetate, 3051.
- , attrition, celluloid, 2697.
- Shellac, 1739, 2968.
- , celluloid lacquer containing, 2578.
- , cellulose ester solvent, 2541.
- , cellulose nitrate with, 2574.
- , cellulose nitrate, lacquer containing, 2593.
- , decreasing inflammability cellulose nitrate by, 1784.
- , dyeing, 2876.
- , gold leaf with borax and, 2588.
- , preserving collodion emulsions by, 2847.
- , reducing inflammability celluloid by, 2752.
- , storage acids in vessels coated with, 958.
- Shellac, see also Resins.*
- Shells, cellulose nitrate, for filling, 1635.
- , incendiary, cellulose nitrate as filling for, 1890.
- Shields, catamenial, celluloid, 2742.
- Shirt bosoms, celluloid, 2706.
- Shoe bottom fillers, celluloid, 2709.
- Shoe enamels, celluloid, 2709.
- Shoe eyelets, celluloid, 2704.
- Shoe fastener, celluloid, 2711.
- Shoe hook caps, celluloid, 2709.
- Shoe lasts, celluloid, 2709.
- Shoe patches, celluloid, 2709.
- Shoe stiffeners, celluloid, 2709.
- Shoe tips, celluloid, 2709.
- Short fibers, utilization, 568.
- Shutters, celluloid, 2917.
- Sicoid, 3045.
- Sida carpinifolia, 246.*
- Sida rhombifolia, 246.*
- Sida urens, 246.*
- Siemens-Hefner lamp, 2495.
- Sierch powder, 2971.
- Signalling, cellulose nitrate for purposes of, 1887.
- Signs, celluloid, 2709.
- Silage, liquor from, mannite in, 1862.
- Silica, cotton containing, 524.
- , colloidal, tower packing, 1270.
- , concentrating sulfuric acid in, 1361.
- , fusing, 1361.
- , reducing inflammability cellulose nitrate by, 1787.
- , transporting nitric acid in, 957.
- Silicate paint, 1888.
- Silicate of soda, see also Water glass.*
- Silicating cellulose nitrate, 1615.
- Silicic ethers, reducing inflammability cellulose nitrate by, 1787.
- Silicon, fixation nitrogen with, 689.
- Silicon hydride, 941.
- Silicon-iron, 1324.
- Silicon nitride, 1363.
- , manufacture of, 922.
- , manufacture ammonia from, 918.
- Silicon oxycarbide, 1401.
- Silicon tetrachloride, 2399.
- Silicon tetrafluoride, 1171.
- Silk, absorption of acids by, 1...
- , action of sulfuric acid on, 118.
- , artificial, differentiation from natural, 2651.
- , —, mantles, photomicrographs of, 2594.
- Silk, artificial, see also Filaments, artificial.*
- , dissolving, zinc chloride for, 102, 103.
- , lustering, cellulose nitrate for, 2573.
- , natural, differentiation from artificial, 2651.
- , nitrating, 1877, 1880, 2923.
- , photomicrographs of, 2594.
- , "simili," 336.
- , tensile strength of, 527.
- Silkin, 3077.
- Silk weed, nitrating, 1874.
- Silotwax, 1810.
- Siloxides, 1363.
- Silver, alloys, quaternary, acid recovery in, 1426.
- , bronzing liquid containing, 2584.
- , colloidal, 403.
- , decolorizing old collodion by, 2815.
- , incrusting on celluloid, 2690.
- , restoring collodion by, 2815.
- , transporting acid in vessels of, 839.

- Silver acetate, coating collodion with, 2816.  
 —, coloring celluloid by, 1896.  
 Silver ammonio-nitrate, coating collodion with, 2816.  
 Silver arsenate, 1336.  
 Silver azide, 2948.  
 Silver bath, fog prevention in, 2816.  
 Silver bromide, sensitiveness of, 2806.  
 Silver chloride, coating collodion with, 2816.  
 Silver chromate, coloring celluloid by, 1896.  
 Silver oxide, 2870.  
 Silver ferrocyanides, intensifying by, 2324.  
 Silver fluoride, coating collodion with, 2816.  
 Silver iodide, 369.  
 —, coloring celluloid by, 1896.  
 —, sensitiveness of, 2806, 2815.  
 Silver lac, 2589.  
 Silver lactate, coating collodion with, 2816.  
 Silver malate, preserving collodion emulsions by, 2847.  
 Silver manganese chromate, catalyst, 940.  
 Silver mirrors, cellulose nitrate for protecting, 1762.  
 Silver molybdate, catalyst, 940.  
 Silver nitrate, 141.  
 —, ammoniacal, 134.  
 —, coating collodion with, 2816.  
 —, coloring celluloid by, 1896.  
 Silver oleate, iodizer addition to, 2813.  
 Silver oxide, catalytic action of, 1158.  
 —, catalyst, 912.  
 Silver perchlorate, coating collodion with, 2816.  
 Silver phosphate, 2852.  
 —, catalyst, 940.  
 —, emulsions, 2856.  
 Silver salts, coating collodion with, 2816.  
 Silver starch solution, 403.  
 Silver sulfide, 3056.  
 —, coloring celluloid by, 1896.  
 Silver tincture, 2589.  
 Silver vanadate, 1121.  
 —, catalyst, 940.  
 Silver vessel test, Waltham Abbey, 2344.  
 Silvered celluloid, 2883.  
 "Simili" silk, 336.  
 Sims-Dudley gun, 2932.  
 Siphon, acid, 752.  
 Sisal, alcohol from, 202.  
 Sisal, nitrating, 1875.  
 Sitka spruce, composition of, 260.  
 Size, cellulose nitrate, 2673.  
 Sizes, cuprammonium cellulose for, 78.  
 Skatol, reaction with lignocellulose, 262.  
 Skins, cellulose nitrate treatment of, 2381.  
 —, hardening, amyl acetate for, 2492.  
 —, impregnation of, cellulose nitrate for, 2609.  
 Skins, *see also Hides*.  
 Skirt fastener, celluloid, 2711.  
 Slaked lime, *see Calcium hydroxide*.  
 Slates, drawing, celluloid, 2729.  
 Slides, lantern, 2865.  
 —, magic lantern, celluloid, 2748.  
 Smelter gas, recovery sulfur from, 1027.  
 Smelter gases, obtaining sulfur from, 1031.  
 —, sulfur in, recovery of, 1032.  
 Smelting, smoke from, purifying, 1086.  
 Smoke, sulfur dioxide from, 1086.  
 Smokeless Blasting Powder, 1810.  
 Smokeless powder, 2381.  
 —, 7, 2940.  
 —, 34, 2940.  
 —, acetone in, removal, 2158.  
 —, acidity in, determining, 2298.  
 —, action Roentgen rays on, 1762.  
 —, action ultra-violet light on, 1714.  
 —, Alters, 2930.  
 —, ammonium acetate, as smoke reducer, 2984.  
 —, ammonium borate as smoke reducer, 2984.  
 —, ammonium carbonate as smoke reducer, 2984.  
 —, ammonium citrate, as smoke reducer, 2984.  
 —, ammonium oxalate, as smoke reducer, 2984.  
 —, ammonium tartrate as smoke reducer, 2984.  
 —, analysis of, 1640.  
 —, Aschan's, 1812.  
 —, Axtell, 2930.  
 —, B, 2938.  
 —, BN, 2925.  
 —, BNF, 2930.  
 —, ballistics, 2967; 2985.  
 —, ballistic specifications, 2931.  
 —, barium acetate, as smoke reducer, 2984.  
 —, barium borate as smoke reducer, 2984.

- Smokeless powder, barium carbonate, as smoke reducer, 2984.
- , barium citrate, as smoke reducer, 2984.
  - , barium oxalate, as smoke reducer, 2984.
  - , barium tartrate, as smoke reducer, 2984.
  - , Beandisch, 1809.
  - , Brazilian, 2962.
  - , brittleness in, 2935.
  - , classification, 2942.
  - , cocoa, 1636.
  - , combustion of, 1795, 2985.
  - , Cooppal, 1808.
  - , decomposition, gases produced, 2369.
  - , —, optical indicator of, 2345.
  - , —, ultra-violet rays, 1763.
  - , detergent, Trivoline, 2544.
  - , drying, 2148, 2934, 2936, 2976.
  - , —, vacuum, 2153.
  - , explosion, pressure developed, 1798.
  - , flame in, diminishing, 2983.
  - , flare backs with, 2936.
  - , French, 2923.
  - , gases in, diminishing, 2983.
  - , gelatinous, Abel, 1637.
  - , German, 2930.
  - , graining, 2976.
  - , granulations of, 2931.
  - , graphite in, determining, 2369.
  - , hardening grains of, 1897.
  - , Hengst, improved, 1637.
  - , hygroscopicity of, 1755.
  - , increasing permanency, 2984.
  - , increasing stability, 2984.
  - , insensibility to shock, diminishing, 2984.
  - , Kolf's, 1851.
  - , Leonard, 2930.
  - , magnesium acetate, as smoke reducer, 2984.
  - , magnesium borate, as smoke reducer, 2984.
  - , magnesium carbonate, as smoke reducer, 2984.
  - , magnesium citrate, as smoke reducer, 2984.
  - , magnesium oxalate, as smoke reducer, 2984.
  - , magnesium tartrate, as smoke reducer, 2984.
  - , manufacture of, 241, 2967, 2976.
  - , Maxign, 1636, 2930.
  - , mercury in, determining, 2369.
  - , mineral residue in, determining, 2369.
  - Smokeless powder, moisture content of, 1755.
  - , muzzle velocity, 2931.
  - , nitroerythrite for, 1858.
  - , nitroguanin, 2888.
  - , nitrostarch and trinitrotoluene, 1836.
  - , Nivea, 2048.
  - , Peyton, 2930, 2932.
  - , du Pont, 2930.
  - , potassium acetate as smoke reducer, 2984.
  - , potassium borate, as smoke reducer, 2984.
  - , potassium carbonate, as smoke reducer, 2984.
  - , potassium citrate, as smoke reducer, 2984.
  - , potassium oxalate as smoke reducer, 2984.
  - , potassium tartrate, as smoke reducer, 2984.
  - , Poudre B, 2938.
  - , reworked, 2941.
  - , reworking, 2941.
  - , Rifleite, 2930.
  - , S. P. 148, 2940.
  - , S. P. 3, 2940.
  - , S. R., 2930.
  - , S. V. R., 2930.
  - , Schultze's, 1808.
  - , smoke from, determining, 2346.
  - , sodium acetate as smoke reducer, 2984.
  - , sodium borate, as smoke reducer, 2984.
  - , sodium carbonate, as smoke reducer, 2984.
  - , sodium citrate as smoke reducer, 2984.
  - , sodium oxalate, as smoke reducer, 2984.
  - , sodium tartrate, as smoke reducer, 2984.
  - , solvent extraction, 2976.
  - , specifications for, 2985.
  - , specifications, French, 2267.
  - , stability, action ultra-violet light on, 1714.
  - , —, determining, 2331.
  - , straw nitrocellulose for, 1803.
  - , surveillance test, Patterson's, 2344.
  - , Swiss, 2930.
  - , Totten's, 2943.
  - , trinitrotoluene and nitrostarch as, 1836.
  - , Troisdorf, 2930.
  - , U. S. Navy, 2938.

- Smokeless powder, velocity of burning, modifying, 2984.  
 —, Wettern, 2936.  
*Smokeless powder, see also Explosives.*  
*Smokeless powder, see also Powder.*  
 Smooth cotton, constants, of, 505.  
 Smyrna cotton, constants, of, 506.  
 —, diameter of fibers, 508.  
 —, length of fibers, 509.  
*Smyrna cotton, see also Cotton, Smyrna.*  
 Snail liver, enzyme in, 345.  
 "Snow paper," 569.  
 "Snow pulp," 569.  
 Soap, addition to, iodizer, 2813.  
 Soaps, decreasing inflammability nitrocellulose with, 1784.  
 Soap, regeneration of fatty acid by niter cake, 792.  
 Soap dish, celluloid, 2717.  
 Soap holder, celluloid, 2717.  
 Soap tablet float, celluloid, 2717.  
 Soapstone, 255.  
 Socks, polka dots on, cellulose nitrate for, 2616.  
 Soda lye, acetone from, 276.  
 Sodium acetate, absorption cellulose by tannin and, 62.  
 —, action of, on cotton, 120.  
 —, addition to, iodizer, 2812.  
 —, dry plate preservative, 2832.  
 —, smoke reducer in powder, 2984.  
 Sodium alcoholate, 2525.  
 —, separating cellulose from cellulose nitrate by, 1666.  
 Sodium aluminate, 923.  
 Sodium ammonium citrate, nitro-starch stabilizer, 1828.  
 Sodium ammonium phosphate, reducing inflammability cellulose nitrate by, 1788.  
 Sodium ammonium pyro-tartrate, nitrostarch stabilizer, 1828.  
 Sodium ammonium tartrate, nitro-starch, stabilizer, 1828.  
 Sodium benzoate, 2529.  
 —, paint remover containing, 2566.  
 Sodium bicarbonate, 2976.  
 —, decolorizing old collodion by, 2814, 2817.  
 —, nitrostarch stabilizer, 1830.  
 —, reducing inflammability cellulose nitrate by, 1788, 1790.  
 —, restoring collodion by, 2814, 2817.  
 Sodium bichromate, niter cake in manufacture of, 792.  
 Sodium bisulfate, precipitating viscose by, 3080.  
 —, sulfuric acid from, 1297.  
 Sodium bisulfite, alcohol recovery by, 2558.  
 Sodium bisulfite, ether recovery by, 2558.  
 —, sulfurous acid from, 1087.  
 Sodium borate, smoke reducer in powder, 2984.  
 Sodium carbonate, decolorizing old collodion by, 2814, 2817.  
 —, hydrolyzing cellulose acetate by, 3008.  
 —, recovery from black-ash, 276.  
 —, reducing inflammability cellulose nitrate by, 1788.  
 —, restoring collodion by, 2814, 2817.  
 —, smoke reducer in powder, 2984.  
 —, specifications for, 2259.  
 —, specifications, French, 2268.  
 —, stabilizing cellulose nitrate by, 1609.  
 Sodium caseinate, reducing inflammability celluloid by, 2754.  
 Sodium cellulose, 15.  
 Sodium chloride, 2974, 2976.  
 —, absorption of starch by, 439.  
 —, action of, on cellulose, 115.  
 —, —, on cotton, 120.  
 —, decolorizing old collodion by, 2817.  
 —, diffusion through cellulose nitrate, 1775.  
 —, electrolysis of, 274.  
 —, granulating cellulose nitrate by, 2247.  
 —, restoring collodion by, 2817.  
 Sodium cholate, 439.  
 Sodium chromate, 792.  
 Sodium cinnamate, 2529.  
 Sodium citrate, 2964.  
 —, cellulose nitrate solvent of alcohol and, 2388.  
 —, smoke reducer in powder, 2984.  
 Sodium cresate, 1306.  
 Sodium cresolate, 3033.  
*Sodium o-dinitro-cresylate, see Antinonin.*  
 Sodium ethylate, determining solubility of cellulose nitrate by, 2296.  
 Sodium ethyl sulfate, acetating cellulose in presence of, 3010.  
 —, cellulose nitrate solvent, 2258.  
 Sodium fluoride, 2797.  
 —, paint remover containing, 2564.  
 Sodium formate, 802, 1153, 2499.  
 —, effect of on viscosity cellulose nitrate, 1769.  
 —, manufacture of, 3002.  
 —, reducing platinum by, 1113.  
 Sodium gelatinate, 1775.  
 Sodium hydrocellulose acid oxalate,

148.  
 Sodium hydroxide, action on cellulose nitrate, 1032.  
 Sodium hydroxide, distillation cellulose with, 58.  
 —, manufacture nitric acid and, 811.  
 —, obtaining from niter cake, 799.  
 —, paint remover containing, 2563.  
 Sodium hydroxymethylsulfonate, 396.  
 Sodium hyposulfite, 174.  
 Sodium iodide, 2811.  
 —, dissolving cellulose by, 108.  
 Sodium lactate, cellulose nitrate solvent, 2388.  
 Sodium levulinate, cellulose nitrate solvent of alcohol and, 2388.  
 Sodium manganate, oxidizing ammonia by, 895.  
 Sodium naphthoate, 2528.  
 Sodium nitrate, 2945, 2970, 2971, 2972, 2974, 2976.  
 —, analysis of, 728, 732, 767.  
 —, bases in, determining, 733.  
 —, borates in, 728.  
 —, briquetting, 742, 814.  
 —, bromates in, 728.  
 —, chlorides in, determining, 734.  
 —, commercial manufacture, 731.  
 —, composition of, 767.  
 —, composition crude, 728.  
 —, conveying, 755.  
 —, crystallizing, 786.  
 —, dangers from, 742.  
 —, deliquescence of, 742.  
 —, determination of, 732.  
 —, —, in Chili saltpeter, 735.  
 —, distribution, 727.  
 —, drying, 742, 773.  
 —, —, Cummert apparatus for, 754.  
 —, evaporating, 786.  
 —, explosive of cellulose nitrate and, 1629.  
 —, explosive from sulfite lye and, 287.  
 —, explosive of sulfur, cellulose and, 1604.  
 —, extraction of, 728.  
 —, formation, 725, 728.  
 —, fortifying spent acid by, 1421.  
 —, "green," 742.  
 —, inflammability of, 742.  
 —, insoluble matter in, determining, 732.  
 —, iodates in, determining, 734.  
 —, manufacture of, 868.  
 —, manufacture nitric acid from, 741.  
 —, manufacture nitrogen dioxide from, 714.  
 Sodium nitrate, moisture in, 742.  
 —, —, determining, 732.  
 —, nitrites in, determining, 735.  
 —, nitrogen in, determining, 730.  
 —, nitrogen dioxide from, 699.  
 —, occurrence, 725.  
 —, origin, 725.  
 —, patents on, 730.  
 —, perchlorates in, de, 34.  
 —, potash in, determining, 730.  
 —, powdering, 731.  
 —, production of, 731, 732.  
 —, purification of, 728, 729, 730.  
 —, recovery of, 784.  
 —, recovery from bags, 739, 784.  
 —, "refined," 731.  
 —, sampling, 767.  
 —, solubility (table), 1521.  
 —, specific gravity solutions of (table), 1523.  
 —, statistics,  
 —, storing, 742, 743, 773, 774.  
 —, storage sheds for, 731.  
 —, sulfates in, determining, 734.  
 —, theory formation, 728.  
 —, use of in sulfuric acid manufacture, 1227.  
 —, washing bags of, 784.  
 Sodium nitrate, *see also* Niter  
 Sodium nitrite, addition to, iodizer, 2812.  
 —, manufacture of, 890.  
 Sodium nitroferrocyanide, *see* Sodium nitroprusside.  
 Sodium nitroprusside, 1332, 1715.  
 Sodium oleate, paint remover containing, 2665.  
 —, purifying cotton by, 59.  
 —, reducing inflammability cellulose nitrate by, 1785.  
 Sodium oxalate, 2964.  
 —, action of, on cotton, 120.  
 —, cellulose nitrate solvent of alcohol and, 2388.  
 —, reducing inflammability cellulose nitrate by, 1789, 1790.  
 —, smoke reducer in powder, 2984.  
 Sodium palmitate, reducing inflammability, cellulose nitrate by, 1785.  
 Sodium paratungstate, 962.  
 Sodium peroxide, 3080.  
 —, bleaching cellulose nitrate by, 2031.  
 —, detonating formaldehyde by, 1668.  
 —, igniting cellulose nitrate by, 1668, 1609.  
 —, oxidizing sulfur with, 1042.  
 —, reducing viscosity by, 3080.

- Sodium peroxide, treatment wood pulp with, 271.
- Sodium phenate, *see* Sodium phenolate.
- Sodium phenolates, 1306, 2928, 3033.
- , paint remover containing, 2566.
- Sodium phosphate, coloring celluloid by, 1896.
- Sodium phosphite, iodizer addition to, 2812.
- Sodium picrate, explosive of nitro-starch and, 1821.
- Sodium polysulfate, 998.
- Sodium pyrosulfate, 628.
- , oleum from, 1293.
- Sodium ricinoleate, 77.
- Sodium ricinosulfonate, *see* Sodium sulforicinate.
- Sodium salicylate, 2871.
- Sodium salt of helianthine, *see* Methyl orange.
- Sodium silicate, 230, 2968.
- , reducing inflammability cellulose nitrate by, 1787.
- , stabilizing cellulose nitrate with, 1596, 1597.
- Sodium silicate, see also Water glass.*
- Sodium stannite, cellulose nitrate solvent of, 2383.
- , dissolving cellulose nitrate by, 1581.
- Sodium stearate, 2529.
- , reducing inflammability, cellulose nitrate by, 1785.
- Sodium sulfantimonite, intensifying by, 2824.
- Sodium sulfate, 114, 157.
- , (penta), 788.
- , absorbing sulfuric acid by, 1313.
- , action of, on cotton, 120.
- Sodium sulfate (acid) action of, on cellulose, 120.
- Sodium sulfate, coagulating cellulose in zinc chloride by, 102.
- , manufacture with niter cake, 801.
- , niter cake for manufacture of 789, 797.
- , photo developing by, 2819.
- , recrystallization of, 807.
- , solubility of, 807.
- , sulfuric acid from, 1297.
- Sodium sulfate acid, *see also* Niter cake.
- Sodium sulphydrate cellulose nitrate solvent of, 2383.
- Sodium sulfide coloring celluloid by, 1896.
- , treating cotton with, 594.
- Sodium sulfite, preparation wood pulp by, 276.
- Sodium sulfite, purifying cotton by, 594.
- Sodium sulfophenolate, *see* Sodium phenolsulfonate.
- Sodium sulforicinate, 328.
- Sodium tartrate, 2964.
- , cellulose nitrate solvent of alcohol and, 2388.
- , smoke reducer in powder, 2984.
- Sodium thiocyanate, dissolving cellulose by, 108.
- Sodium thiosulfate, 2823.
- Sodium *p*-tolylene sulfonate, 2530.
- Sodium trichlorethylamidine, cellulose ester solvent, 2547.
- Sodium tungstate, fireproofing by, 1876.
- Sönn hemp, nitrating, 1881.
- Soie de Hal, 86.
- Solanine, effect collodion membrane on, 1770.
- Solarization, 2902.
- Solar work, collodion for, 2912.
- Sole leather, cellulose nitrate for, 2609.
- Solenite, 2974.
- Solid alcohol, 2573.
- Solid collodion, 2788.
- Solid collodion, *see also* Alcohol, solid.
- Solid collodion, *see also* Celluloid.
- Solid spirit, 2598.
- Solidified alcohol, *see* Alcohol solid.
- Solidified collodion *see* Celluloid.
- Solubility, determining of cellulose nitrate, 2287.
- Soluble cellulose, 2257.
- Soluble cellulose, *see also* Cellulose nitrate.
- Soluble cotton, 1693.
- Soluble cotton wool, 1693.
- Soluble fiber, 1693.
- Soluble indigo, *see* Indigo carmine.
- Soluble nitrocellulose, 1721.
- Soluble starch, action enzymes on, 416.
- , manufacture of, 415.
- Soluble starch, *see also* Starch, soluble.
- Solutions colloidal, preparation of, 81.
- Solvents, acetic acid for recovery of, 2558.
- , amyl alcohol for recovery of, 2558.
- , butyl alcohol for recovery of, 2558.
- , capryl alcohol for recovery of, 2558.
- , cellulose, 66.

- Solvents, cellulose, hydrochloric acid  
 as, 92.  
 —, chloroform for recovery of, 2558.  
 —, clarification, 2559.  
 —, cresol for recovery of, 2558.  
 —, emulsion for recovery of, 2558.  
 —, filtration, 2559.  
 —, formic acid for recovery of, 2558.  
 —, glycerol for recovery of, 2558.  
 —, handling, 2382, 2558.  
 —, —, economical methods, 2561.  
 —, hygroscopicity of, 1720.  
 —, lactic acid for recovery of, 2558.  
 —, mixing, devices for, 2561.  
 —, octyl alcohol for recovery of, 2558.  
 —, oleic acid for recovery of, 2558.  
 —, partitioning, 2561.  
 —, propyl alcohol for recovery of, 2558.  
 —, recovery of, calcium chloride for, 2557.  
 —, —, carbon tetrachloride, 2557.  
 —, —, cellulose ester 2558.  
 —, —, magnesium chloride, 2557.  
 —, —, refrigeration processes, 2553.  
 —, —, trichloroethylene for, 2557.  
 —, —, vacuum processes, 2553.  
 —, recovery nitric acid by, 1467.  
 —, removing paint with, 2562.  
 —, sampling, 2559, 2561.  
 —, sodium bisulfite for recovery of, 2558.  
 —, storage, 2558.  
 —, transporting, 2558.  
 —, vapor of, inflammability, reducing, 2561.  
 —, vaseline for recovery of, 2568.  
 —, weighing, 2558, 2561.  
*Solvents, see also Liquids inflammable.*  
*Solvents, see also Plastics.*  
 Solvent naphtha, determining, in turpentine, 2571.  
 Solvent recovery, 2382, 2551, 2841.  
*Solvent recovery, see also Solvents, recovery of.*  
 Soothers, baby, celluloid for, 2729.  
*Sorbic acid, see Sorbic acid.*  
 Sorbinosan trinitrate, 1847.  
*Sorbinose, see Sorbin.*  
 Sorbite hexacetate, 185.  
 Sorbitol, 104.  
 Sorbose, 7.  
*Sorbose, see also Sorbin.*  
 Sorghum seeds, starch in, 457.  
 Sounding tubes, cellulose nitrate for coating, 2599.  
*Sound record, see Phonograph record.*  
 Soya bean, cellulose ester solvent, 2551.  
 Soya bean, plastic from, 2551.  
 —, plastic of celluloid and, 2754.  
*Sozolic acid, see Aseptic.*  
 Spagnees, nitrating, 1879.  
 Spangles, celluloid, 2712.  
*Spanish fly, see Cantharides.*  
*Spanish leather, see Leather, Spanish.*  
 Specific gravity, conversion to Baume (table), 1525.  
 —, determining of cellulose nitrate, 2306.  
 Specific rotatory power, cellulose, 49.  
*Specific rotatory power, see also Rotatory power.*  
 Spectacle frames, celluloid, 2703, 2744.  
 Spectral lines, cellulose nitrate in focussing of, 2912.  
 Spectrographs, cellulose nitrate, 2912.  
 Spectroscope, analysis cellulose nitrate by, 2306.  
 Spectroscopy, cellulose nitrate in, 2912.  
 Speculum, celluloid, 2742.  
 Speedy viscosimeter, 2279.  
 Spent acid, acidity of, determining, 1504, 1509.  
 —, acid phosphate manufacture with, 1123.  
 —, analysis, 1504.  
 —, analysis, English practice, 1511.  
 —, —, nitrous acid in, 1515.  
 —, —, preparation of sample, 1512.  
 —, —, sulfuric acid in, 1516, 1517.  
 —, —, total acidity, 1512.  
 —, —, water in, 1517.  
 —, calculating, Fowler method, 1499.  
 —, clarifying, 1412.  
 —, —, Claessens method, 1416.  
 —, —, filtration for, 1413.  
 —, composition, 1462.  
 —, concentrating, 1423.  
 —, denitrating, 1423, 1440.  
 —, —, Bayer process, 1518.  
 —, —, Rivers process, 1447.  
 —, —, Guttman system, 1462.  
 —, —, Hall process, 1456.  
 —, —, Jahn system, 1464.  
 —, —, Patterson process, 1461.  
 —, —, plant efficiency, 1461.  
 —, —, Vender system, 1460.  
 —, distilling, 1431.  
 —, filtering, 1412, 1444.  
 —, —, Brockbank apparatus, 1414.  
 —, —, Furness method, 1426.  
 —, flocculent matter in, removing, 1413.  
 —, fortifying, 1412, 1414, 1681.



- Spent acid, fortifying, electrolytic, 1420.
- , —, Kaesmacher process, 1426.
  - , —, Mowbray method, 1416.
  - , —, sodium nitrate for, 1421.
  - , —, Zeisberg process, 1426.
  - , mixing, 1428.
  - , neutralizing, 2032.
  - , nitrogen oxides in, removal, 1424.
  - , nitrosugars in, 1415.
  - , nitrotoluene in, recovery of, 1459.
  - , nitrous fumes in, recovery, 1466.
  - , oxalic acid in, 1415.
  - , purifying, 1423.
  - , —, Chardonnet process, 1422.
  - , recovery of, 1414.
  - , —, continuous, 1443.
  - , —, electrical, 1442.
  - , —, Gretna practice, 1430.
  - , —, Lemaitre process, 1443.
  - , —, Poetsch method, 1415.
  - , —, Skoglund method, 1444.
  - , —, steam required, 1445.
  - , —, Tyfer process, 1447.
  - , —, Vajdafy process, 1443.
  - , reduction of, 1444.
- Spent acid, re-energizing, see Spent acid, fortifying.
- Spent acid, renewing, see Spent acid, fortification of.
- , re-use of, 1412.
  - , sampling, 1509.
  - , stills for, charging, 1437.
  - , storage, 1428, 1457.
  - , sugars in, 1415.
  - , sulfuric acid in, determining, 1510.
  - , tanks for, 1478.
  - , total acidity in, determining, 1505.
  - , —, Lunge and Berl method, 1506.
  - , total nitrogen, determining, 1510.
  - , utilization, 1478.
  - , weighing, 1428.
- Spent oxide, 1031.
- , analysis of, 1040.
  - , sulfur in, determining, 1033.
- Spermaceti, paint remover containing, 2565.
- , reducing inflammability of cellulose nitrate by, 1785.
- Spindles, surfacing, cellulose nitrate for, 2612.
- Spinel, 1278.
- Spiraeoides, 404.
- Spiralit, 1816.
- Spirit, solid, 2598.
- Spiritol, 2409.
- Spirit furnace, 107.
- Spirochaeta cytophaga*, 343.
- Spirogyra*, 395.
- Spirosal*, see *Glycolsalicylate*.
- Spleen, cellulose in, 326.
- Splints, surgical*, see *Surgical splints*.
- Split leather*, see *Leather, split*.
- Sponge, artificial, manufacture of, 335.
- Spondite, 3044.
- Sponge, viscose for, 3079.
- Spongolignine, 2602.
- Sporting ballistite, 2969.
- S. powder, 2974, 2976.
- Sprays, 1234.
- Sprengal explosives, use of acetone in, 2400.
- "Sprit," 249.
- Spruce, ash in, 244, 250.
- , cellulose in, 244.
- Spruce wood, composition of, 345.
- Spruce, constants of, 244.
- , distillation of, 256.
  - , furfural in, 250.
  - , lignin in, 244, 250.
  - , methylpentosan in, 250.
  - , moisture in, 244.
  - , pectic matter in, 244.
  - , pectin in, 250.
  - , pentosan in, 250.
  - , protein in, 244, 250.
  - , wax in, 250.
- Squeegees, celluloid, 2917.
- S. R. powder, 2930.
- Stability, determining, Hoitsema method, 1703.
- Stability, heat tests*, see *Stability tests*.
- , limit state of, 1665, 1706.
- Stability test, Hoitsema, 1703.
- Stability tests, 2321.
- , explosion test, 2347.
  - , Ordnance Department, 1150, 2347.
  - , qualitative, 2324.
  - , quantitative, 2324.
  - , silver vessel, 2344.
  - , Sy, 2346.
  - , Vieille, 2345.
- Stability tests*, see also *Cellulose nitrate, stability, determining*.
- Stability tests*, see also *Heat tests*.
- Stabilizer, amyl alcohol, 2942.
- , diphenylamine, 2942.
  - , nitroguanidine, 2942.
  - , urea, 2942.
- Stabilizers, 2535, 2551.
- Stabilizers*, see also *Amphor, substitutes*.
- Stabilite, 2942.
- Stachyose, 7.

- Stahl consistency apparatus, 2280.  
 Stains, cellulose nitrate for wood, 2693.  
 Stamps, celluloid, 2746.  
 Standard wood spirits, 2409.  
 Stannic, see also Tin(ic).  
 Stannite, see Sodium stannite.  
 Stannotype, 2911.  
 Stannous chloride, 265.  
 —, coloring celluloid by, 18.  
 Stannous, see also Tin(ous).  
 Starch, 7, 389.  
 —, absorption salts by, 437, 439.  
 Starch, acetylated, see Starch acetate.  
 —, acetic acid from, 41.  
 Starch, acetic esters of, see Starch acetate.  
 —, acetylation of, velocity, 414.  
 —, acidic properties of, 439.  
 —, action of acids on, 495.  
 —, action of chloral hydrate on, 441.  
 —, action of diastase on, 464, 474.  
 —, action of dilute nitric acid on, 1571.  
 —, action of enzymes on, 416.  
 —, action of ferments on, 467.  
 —, action of formic acid on, 415.  
 —, action of malt extract upon, 417.  
 —, action of *Mucor boudard* on, 340.  
 —, action of nitric acid upon, 1816.  
 —, action of oxalic acid on, 424.  
 —, action of pancreas on, 417.  
 —, action of pancreatic extract on, 417.  
 —, action of perborates on, 424.  
 —, action of persulfates on, 424.  
 —, action of saliva on, 416.  
 —, action of serum on, 417.  
 —, action of sulfocyanides on, 424.  
 —, action of tannin on, 441.  
 —, adhesives from, 484.  
 —, ageing artificial, 484.  
 —, ageing electrolytes for, 403.  
 —, aldehydes from, 41.  
 —, amylose of, 482.  
 —, anhydrous, 436.  
 —, animal, 406.  
 —, autolysis of, 484.  
 —, benzoylation of, 415.  
 —, bleaching of, 425, 441, 453.  
 —, carbimol hydrolysis of, 407.  
 —, caseate, nitrating, 1837.  
 —, cellulose ester solvent, 2542.  
 —, chemical properties of, 433.  
 —, coagulating electrolytes for, 403.  
 —, colloidal, 432.  
 —, colloidion-diluted, 440.  
 —, coloring, 445.  
 —, starch, compacting, 452.  
 —, —, compressing, 453.  
 —, —, co-nitration benzene and, 1829.  
 —, —, co-nitration resin and, 1819.  
 —, —, co-nitration of rosin and, 1827.  
 —, —, co-nitration of sugar and, 1829.  
 —, —, corn, 465.  
 —, —, manufacture, Baines process, 466.  
 —, —, —, sulfur dioxide process, 465.  
 —, —, —, Wildsmith process, 466.  
 —, cotton waste containing, 648.  
 —, "cristals," 439.  
 —, cuprammonium absorbed by, 82.  
 —, decomposition of, 41.  
 —, decomposition, 2,5-dimethylfuran in, 42.  
 —, dehydration of, 436.  
 —, demineralized, 438.  
 —, —, properties, 445.  
 —, de-oiling, 45.  
 —, depulverizing, 454.  
 —, determination of, takadiastase for, 475.  
 —, dextrination of, 422.  
 —, dialysis of, 1768.  
 —, dialyzing by colloidion, 440.  
 —, diastatic liquefaction of, 466.  
 —, dissolving, 418.  
 —, distinguishing nitrostarch from, 1837.  
 —, distillation of, 41, 423, 424.  
 —, —, with lime, 424.  
 —, drying, 462.  
 —, —, block process, 455.  
 —, —, dry plate preservative, 2834.  
 —, —, electric transport of, 435.  
 —, —, extracting oil from, 454.  
 —, —, formaldehyde, 235.  
 —, —, formaldehyde and, 420, 484.  
 —, —, formation, 394.  
 —, —, action of moulds in, 404.  
 —, —, *Autochthonus*, 394.  
 Starch, formic esters of, see Starch formate.  
 —, furfural from, 436.  
 —, furfural in, 47.  
 —, gases from distillation of, 41.  
 —, gelatinization temperature of, 437.  
 —, gluten in, removing, 462.  
 —, glycerol as solvent for, 431.  
 —, "green," 466.  
 —, gum from, 403.  
 —, heat on, 422.  
 —, heat of combustion, 428.  
 —, heat of formation, 438.  
 —, hydrolysis of, 427, 476, 479, 1768.  
 —, hydrolysis, diastase for, 468.

- Starch, hydrolysis, enzymatic, 484.  
 —, hygroscopicity of, 1751, 1834.  
 —, influence of, on explosibility of wet nitrated cellulose, 1796.  
 —, inversion of, 480.  
*Starch, iodide of, see Starch iodide.*  
 —, ketones from, 41.  
 —, lactic acid from, 440.  
 —, liquefaction of, 467.  
*Starch, maize, see Starch, corn.*  
 —, manufacture, 445.  
 —, —, Martin process, 448, 454.  
 —, —, non-fermentative process, 448.  
 —, —, "sour" process, 448.  
 —, —, wash water from, disposal of, 460.  
 —, microscopic appearance of, 433.  
 —, modifications of, 604.  
*Starch, modified, see Starch, soluble.*  
 —, modifying, chloric acid for, 428.  
 —, —, formic acid for, 428.  
 —, —, hydrofluoric acid for, 428.  
 —, —, phosphoric acid for, 428.  
 —, —, phosphotungstic acid for, 428.  
 —, moisture in, 434, 1751.  
 —, —, determining, 434.  
 —, molecular weight of, 406.  
 —, nitrated, 2975.  
 —, —, flash point of, 1833.  
 —, —, uses of, 1931.  
*Starch, nitrated see also Nitrostarch.*  
 —, nitrating, Arnold process, 1826.  
 —, —, Ellis apparatus, 1830.  
 —, —, Høitsemma method, 1832.  
 —, —, Holmes method, 1827.  
 —, —, Hough method, 1831.  
 —, —, Sadtler method, 1831.  
 —, —, Will-Lenze process, 1825.  
 —, nitration, resin and, 2255.  
 —, nitration sugar with, 1625.  
 —, nitric acid compounds of, 1567.  
 —, non-gelatinizable, 428.  
 —, occurrence, 392, 405.  
 —, optical properties of, 430.  
 —, origin, 389.  
 —, oxidation of, 425, 426.  
 —, paste of, 441.  
 —, peptonization of, 444.  
 —, perfuming, 445.  
 —, phosphoric content of, 471, 402.  
 —, phosphorus in, 437.  
 —, polarization of, 437.  
 —, potato, manufacture, 457.  
 —, —, —, Hansen process, 461.  
 —, —, odor in, removal of, 461.  
 —, —, nitrating, 1824, 1832.  
 —, powdering, 454.  
 —, precipitating cuprammonium cellulose with, 76.  
 —, production, Egypt, 391.  
 —, —, German, 391.  
 —, —, Turkish, 391.  
 —, properties of, 433.  
 —, purifying, 455.  
 —, —, electrically, 426.  
 —, retrogression of, 483.  
 —, rice, 462.  
 —, —, demineralized, 464.  
 —, —, hydrolysis of, 463.  
 —, —, liquefaction of, 464.  
 —, —, manufacture, 462.  
 —, —, —, Berger process, 463.  
 —, —, —, Colman process, 463.  
 —, —, —, Mack process, 463.  
 —, —, nitrating, 1824, 1832.  
 —, —, steeping, 463.  
 —, saccharification, 397, 467, 470, 471.  
 —, —, citric acid for, 398.  
 —, sizing with, 484.  
 —, soluble, 424.  
 —, —, dialyzing, 439.  
 —, —, hygroscopicity of, 1834.  
 —, —, manufacture of, 430.  
 —, —, molecular weight of, 406.  
 —, —, nitrating, 1832.  
*Starch, soluble, see also Starch, acetylated.*  
 —, solubility of, 434.  
 —, specific gravity, 435, 441.  
 —, stability towards heat, 41.  
 —, substitutes for, 484.  
 —, synthesis of, 395, 396.  
 —, tannin and, 416.  
 —, tapioca, nitrating, 1837.  
 —, tar from, 41.  
 —, *thin-boiling, see Starch, soluble.*  
 —, thinning, 425, 426.  
 —, thiosulfates as solvents for, 431.  
 —, tenacity of, 461.  
 —, tin chloride upon, 441.  
 —, transformations of, 389.  
 —, turmeric, nitrating, 1837.  
 —, ultra-violet rays on, 435.  
 —, wheat, nitrating, 1832.  
 —, xanthates of, 3083.  
 —, xanthogenic esters of, 349.  
 —, X-rays on, 435.  
 —, zein as source of, 2550.  
 Starch acetate, 413, 414.  
 —, commercial applications of, 415.  
 Starch benzoate, 415.  
*Starched linen, see Linen, starched.*  
 Starch esters, 413.  
 Starch formate, 414.  
 Starch iodate paper, 1334.  
 Starch iodide, 406.  
 —, decoloration, albuminates for,

- Starch iodide, decoloration, albumens for, 411.  
 —, —, globulins for, 411.  
 —, —, phosphoproteins for, 411.  
 —, properties of, 412.  
 starch-iodide paper, 1334.  
 starch octonitrate, 1832.  
 starch paste, 426, 441.  
 —, action of diastase on, 467.  
 —, ageing, 444.  
 —, coloring, 445.  
 —, evaluation of, 445.  
 —, liquefaction, regarding, 443.  
 —, manufacture of, Ekman process, 442.  
 —, manufacture, Gastine process, 442.  
 —, —, Higgins process, 442.  
 —, perfuming, 445.  
 —, retrogression of, 444.  
 —, saccharification of, 470, 471.  
 —, viscosity of, decreasing, 443.  
 Starch triformate, *see* Starch formate  
 starch-zinc iodide paper, 2334.  
 static electric machines, cellulose nitrate for, 1698, 1766.  
 stay, celluloid, 2709.  
 S. T. dynamite, 2974.  
 steam, washing cellulose nitrate by, 2079.  
 Steapsin, activity of, in presence of cellulose nitrate, 1770.  
 Stearic acid, 522.  
 —, chlorinated, cellulose acetate solvent, 2930, 3031.  
 —, nitrated, 1804.  
 —, paint remover containing, 2565.  
 Stearine, 430, 2970.  
 —, mercerizing finish of, 232.  
 —, paint remover containing, 2565.  
 —, solvent, amyl acetate as, 2492.  
 Stearine, *see also* Tristearin.  
 Stearone, cellulose nitrate solvent, 2384.  
 Stearyl (penta) glucose, 187.  
 Steatite, reducing inflammability of cellulose nitrate by, 1790.  
 Steel, action of sulfuric acid on, 1319, 1321.  
 —, pickling, niter cake for, 795.  
 Steelite, 1784, 2974.  
 Stereoscopic pictures, 2900.  
 Stereoscopic transparencies, 2865.  
 Stereotype, celluloid, 2746.  
 —, cellulose nitrate, 2381.  
 Sternoid, 2869.  
 Steroxylin, 2669.  
 Stethoscope, celluloid, —  
 Sthenosage, 2639.  
 Sticking plaster, 2572.  
 Stills, gold, 1267.  
 —, platinum, firing of, 1365.  
 Still watcher, 1435, 1439.  
*Stipa macrochloa*, 327.  
*Stipa tenuissima*, 327.  
 Stocker's unburnable collodion, 1635, 1782.  
 Stokes, law of, 2280.  
 Stone, artificial, cellulose nitrate for, 2655.  
 Stones, inlaying celluloid with, 2690.  
 Storage battery envelopes, cellulose nitrate for, 1874.  
 Storage batteries, *see also* Battery, storage.  
 Storage tanks, *see* Tanks, storage.  
 Stormer viscosimeter, 1741, 2281.  
 Stoving, 1766.  
 Stowite, 2975.  
 Straw, artificial, 2381.  
 —, cellulose nitrate for, 2042, 2644.  
 —, —, viscose for, 3082.  
 —, ash in, 244.  
 —, cellulose in, 244.  
 —, celluloses of, 168, 1804.  
 —, composition, of 10, 329.  
 —, constants of, 244.  
 —, copper value of, 330.  
 —, distillation of, 44.  
 —, drying, 636.  
 —, furfural value of, 329, 330.  
 —, lignin in, 244.  
 —, moisture in, 244.  
 —, nitrated, 1872, 1873.  
 —, —, ignition temperature of, 285.  
 —, —, stability of, 285.  
 —, nitrated oat, 1637.  
 —, nitrating, 285, 319, 320, 329, 557, 1629, 1803, 1808.  
 —, nitric acid compounds of, 1634.  
 —, oat, nitrating, 1637.  
 —, pectic matter in, 244.  
 —, protein in, 244.  
 —, utilization of, 209.  
 —, xylan in, 329.  
 Straw board, cellulose nitrate in manufacture of, 2599.  
 Straw dynamite, 1893, 1804, 2973.  
 straw nitrocellulose, *see* Cellulose nitrate, straw.  
 Strip powders, 2934.  
 Stripping films, 2900.  
*Strontia*, *see* Strontium hydroxide.  
 Strontium bromide, 2811.  
 —, reducing inflammability of cellulose nitrate by, 1779.  
 Strontium carbide, catalyst, 917

- Strontium nitrate, cellulose nitrate solvent of alcohol and, 2388.  
 Strontium chloride, 2811.  
 —, reducing inflammability of cellulose nitrate by, 1779.  
 Strontium hydroxide, saponifying with, 618.  
 Strontium iodide, 2811.  
 —, dissolving cellulose by, 108.  
 —, reducing inflammability of cellulose by, 1779.  
 Strontium lactate, 2291.  
 —, cellulose nitrate solvent of alcohol and, 2388.  
 Strontium levulnate, cellulose nitrate of alcohol and, 2388.  
 Strontium nitrate, fortifying spent acid by, 1421.  
 —, manufacture, 947.  
 Strontium oxalate, cellulose nitrate of alcohol and, 2388.  
 Strontium tartrate, cellulose nitrate solvent of alcohol and, 2388.  
 Strontium thiocyanates, dissolving cellulose by, 107, 108.  
*Stychnine*, see also *Nux vomica*.  
 Studs, celluloid, 2703.  
 Studor powder, 2974.  
*Stuff-chest*, see *Poacher*.  
*Styracin*, see *Cinnamyl cinnamate*.  
 Styracit tetranitrate, 1848.  
*Styrax*, see *Storax*.  
*Styrene*, see also *Cinnamene*.  
*Styrol*, see also *Styrene*.  
 Styrolene, 2393.  
 —, cellulose ester solvent, 336.  
 —, see also *Styrene*.  
*Styron* (crystallized), see *Cinnamic alcohol*.  
*Styryl alcohol*, see *Styrone*.  
 Subaqueous objects, blasting, cellulose nitrate for, 2164.  
 Suberit, 2669.  
 Subtractive films, 2881.  
 Subwax, 246.  
 Succinic acid, 2821, 2822.  
 —, paint remover containing, 2563.  
*Succinic ether*, see *Ethyl succinate*.  
*Succinic ether*, see *Ethyl disuccinate*.  
*Succinonitrile*, see *Ethylene cyanide*.  
 Sucrase, 189.  
 Saccharose, separation by collodion membrane, 1775.  
 Sucrose acetate, 186.  
 Sucrose octoacetate, 185.  
 Sucrose octonitrate, 1852.  
 Sugar, 2820.  
 —, acetic acid from, 41.  
 —, addition to iodizer, 2812.  
*Sugar, aldehydes from*, 41.  
 —, cellulose nitrate combined with, 1620.  
 —, co-nitration of glycerol and, 1851.  
 —, co-nitration starch and, 1829.  
 —, converting cellulose to, 664.  
 —, decomposition of, 41.  
 —, distillation of, 41, 44.  
 —, dry plate preservative, 2828.  
 —, filtering through cellulose, 334.  
 —, fulminating, 1849.  
 —, gases from distillation of, 41.  
 —, ketones from, 41.  
 —, licorice, nitrating, 1843.  
 —, manufacture of from sawdust, 206.  
 —, nitration of glycerol and, 2255.  
 —, nitration starch with, 1625.  
 —, photosynthesis of, 393.  
 —, preparation of, from wood, 125.  
 —, removal nitrogen oxides from sulfuric acid by, 1347.  
 —, stability towards heat, 44.  
 —, softening vulcanized fiber by, 105.  
 —, tar from, 41.  
*Sugar of lead*, see *Lead acetate*.  
 Sugar cane, nitration of, 329.  
 Sugar of manna, 1862.  
 Sugar pine, composition of, 258.  
 Sulfacetic acid, acetating cellulose in presence of, 3011.  
 Sulfamido ethylester, cellulose ester solvent, 2547.  
 Sulfanilic acid, 1334.  
 —, determining stability of cellulose nitrate by, 2235.  
 Sulfate cellulose, waste liquor, niter cake in utilizing, 805.  
 Sulfates, absorption starch by, 439.  
 —, determination of, 1328.  
 —, determination, volumetric, 1328.  
 —, determining in cellulose nitrate, 2300.  
 Sulfates (poly), manufacture of, 815.  
 Sulfates, manufacture oleum from, 1128.  
 —, sulfur from, 1027, 1400.  
 —, sulfur dioxide from, 1084.  
 —, sulfuric acid from, 1299.  
*Sulfethic acid*, see *Ethylsulfuric acid*.  
 Sulfides, manufacture sulfuric acid from, 1280.  
 —, mercerizing cellulose by, 220.  
 —, sulfur from, 1024, 1400.  
 Sulfonic acid, 322.

- Sulfite cellulose, drying, changes upon, 45.  
 —, lyes\* composition of, 41.  
 —, nitration, 1670.  
 —, sulfur dioxide gases for, 1090.  
 —, *file, see also Cellulose, sulfite, file cellulose spent liquors,\* see sulfite lye.*  
 —, *file liquor, acetic acid from,* 997.  
 —, adhesives from, 284.  
 —, analysis of, 284.  
 —, ash in, 280.  
 —, binder composed of, 275.  
 —, briquettes of, 275.  
 —, composition of, 281.  
 —, filler of, 275.  
 —, galactose in, 281.  
 —, mannose in, 281.  
 —, moulded plastic articles from, 275.  
 —, properties of, 281.  
 —, solids in, 280.  
 —, sulfur in, 280.  
 —, sulfite liquor, sulfur dioxide from, 1086.  
 —, —, utilization of waste, 209.  
 —, xylene in, 281.  
 —, sulfite lye, ammonium nitrate explosives from, 287.  
 —, —, dyeing indigo with, 282.  
 —, —, fertilizer from, 283.  
 —, —, fuel from, 283.  
 —, —, literature of, 283.  
 —, —, potassium nitrate explosives from, 287.  
 —, —, sodium nitrate explosives from, 287.  
 —, —, tanning extract manufactured from, 284.  
 —, —, utilization, Drewsen's method, 282.  
 —, sulfite pulp, bleaching, 316.  
 —, sulfites, analysis of, 1097.  
 —, —, detection, 1332.  
 —, —, determination, iodometric, 1008.  
 —, —, estimation, 1332.  
 —, sulfobenzid, cellulose ester solvent, 2545.  
 —, sulfo-carbanilid, cellulose ester solvent, 2545.  
 —, sulfocarmic acid, preserving collo-dion emulsions by, 2846.  
 —, *Sulfocyanic ether, see Ethyl sulfocyanate.*  
 —, *Sulfocyanides, action of, on starch,* 423.  
 —, *Sulfocyanide, see also Thiocyanates.*  
 —, Sulfolysis, 190, 191.  
 —, Sulfonal, cellulose ester solvent, 2545.  
 —, Sulfonated fatty acids, cellulose acetate solvent, 3031.  
 —, Sulfonic acid, acetating cellulose in presence of, 3009.  
 —, —, formic acid manufacture\* with, 3003.  
 —, Sulfonitronic acid, 1000.  
 —, Sulfophenolic acid, *see Phenol sulfonic acid.*  
 —, Sulfuricinolie acid, acetating cellulose in presence of, 3008.  
 —, *Sulfourea, see Thiocarbamide.*  
 —, *Sulfurinic acid, see Ethylsulfuric acid.*  
 —, *Sulfurindus acid, see Ethylsulfurous acid.*  
 —, Sulfur, 1011, 2975.  
 —, —, atomic weight of, 1034.  
 —, —, boiling point of, 1034.  
 —, —, burners, 1062, 1171, 1175, 1185.  
 —, —, for feeding, 1068.  
 —, —, for hand operated, 1063.  
 —, —, for Körtling, 1070.  
 —, —, for mechanical, 1063.  
 —, —, for operation of, 1067, 1176.  
 —, —, oxide shafts, 1186.  
 —, —, rotary, 1068.  
 —, —, Sachsenburger, 1061.  
 —, —, for Tromblee & Paull, 1064.  
 —, —, for Vesuvius, 1068.  
 —, —, burner gas from, composition, 1237.  
 —, —, burning of, 1063.  
 —, —, catalys. inhibitor, 905.  
 —, —, Chilean deposits of, 1024.  
 —, —, colloidal, 1036.  
 —, —, formation of, 1026.  
 —, —, obtaining, 1034.  
 —, —, Columbian deposits of, 1024.  
 —, —, conversion to sulfur dioxide, 1181.  
 —, —, crystalline forms of, 1034.  
 —, —, density of, 1035.  
 —, —, deposits of, 1020.  
 —, —, determining of, 1037, 1038.  
 —, —, determining, in brinstone, 1038.  
 —, —, in pyrites, 1046, 1053.  
 —, —, in spent oxide, 1041.  
 —, —, in zinc blende, 1056.  
 —, —, in Zuhlkowski's method, 1041.  
 —, —, explosive containing, 1032.  
 —, —, explosive of sodium nitrate, cellulose and, 1004.  
 —, —, extraction, 1022.  
 —, —, Frasch method, 1023.  
 —, —, centrifuging method, 1033.  
 —, —, Gill process, 1022.  
 —, —, Payen and Gill method, 1022.  
 —, —, Sicilian method, 1023.

- Sulfur, extraction, steam for, 1022.  
 —, —, super-heated steam for, 1022.  
 —, —, super-heated water for, 1024.  
 —, fineness, estimating, 1034.  
 —, fixation nitrogen with, 1039.  
 —, flowers of, 1033.  
 —, flowers, composition of, 1033.  
 —, free energy of, 1034.  
 —, gases from, purifying, 1091.  
 —, German, 1020.  
 —, Hawaiian, 1020.  
 —, heat of combustion of, 1036.  
 —, ignition point of, 1034.  
 —, iodine combinations of, 1126.  
 —, Louisiana, 1020, 1023.  
 —, manufacture, alkali waste for, 1028.  
 —, —, calcium sulfate for, 1027.  
 —, —, coal-gas for, 1085.  
 —, —, Frasch process, 1023.  
 —, —, gas for, 1030.  
 —, —, gypsum for, 1027.  
 —, —, Hall process, 1025.  
 —, —, iron pyrites for, 1024.  
 —, —, niter cake for, 1027.  
 —, —, pyrites for, 1024.  
 —, —, smelter gases for, 1027, 1032.  
 —, —, spent oxide for, 1031.  
 —, —, sulfates for, 1027.  
 —, —, sulfides for, 1024.  
 —, —, sulfite cellulose lyes for, 1032.  
 —, —, sulfur dioxide for, 1026, 1027.  
 —, —, Thiogen process, 1027.  
 —, —, wet process for, 1026.  
 —, Mexican deposits of, 1024.  
 —, obtaining, by means of niter cake, 804.  
 —, occurrence of, 1020.  
 —, origin, 1022.  
 —, oxidizing, 1042.  
 —, Peruvian deposits of, 1024.  
 —, plastic, 1035.  
 —, powdered, obtaining, 1034.  
 —, production, Austria-Hungary, 1021.  
 —, —, Chili, 1021.  
 —, —, France, 1021.  
 —, —, Germany, 1021.  
 —, —, Greece, 1021.  
 —, —, Italy, 1021.  
 —, —, Japan, 1021.  
 —, —, Spain, 1021.  
 —, —, United States, 1021.  
 —, properties of, 1034.  
 —, recovery, Chance-Claus process, 1029.  
 —, recovery from petroleum, 1033.  
 Sulfur, recovery, spent oxide for, 1031.  
 —, refining, 1032.  
 —, refining, Michel process, 1033.  
 —, roll, 1033.  
 —, selenium in, determining, 1089.  
 —, Sicilian, 1020.  
 —, solubility of, 1036.  
 —, solvents for, 1037.  
 —, sources of, 1030.  
 —, storage, 1065.  
 —, storing, 1175.  
 —, sublimed, 1032.  
 —, sulfur dioxide as solvent for, 1069.  
 —, sulfuric acid from niter cake and, 793.  
 —, Texas, 1023.  
 —, transition point of, 1034.  
 —, uses, fertilizer, 1036.  
 —, Venezuelan deposits of, 1024.  
 —, volatility of, 1034.  
 —, waste from Leblanc process, 1029.  
 —, weighing charges to be burned, 1066.  
 Sulfur chloride, acetating cellulose in presence of, 3011.  
 —, dissolving sulfur by, 1037.  
 Sulfur dichloride, gelatinizing cellulose nitrate by, 2253.  
 Sulfur dioxide, 1057, 1069.  
 —, absorption of, 1087.  
 —, absorption of, by cellulose nitrate, 1699.  
 —, action of, on cellulose, 122.  
 —, analysis of, 1096.  
 —, applications, 1099.  
*Sulfur dioxide, see also Sulfurous acid.*  
 —, bleaching cellulose nitrate with, 2011.  
 —, bleaching with, 1099.  
 —, boiling point, 1069.  
 —, camphor and, as cellulose nitrate, solvent, 2661.  
 —, coefficient of expansion of, 1094.  
 —, conversion, 1181.  
 —, density, 1089, 1094, 1237.  
 —, detection of, 1096, 1332.  
 —, dissolving resins by, 1099.  
 —, estimating, 1083, 1332.  
 —, —, Reich's method, 1083.  
 —, heat of formation of, 1095.  
 —, hydrolyzing cellulose by, 204.  
 —, impurities in, 1089.  
 —, Kquid, 1069, 1088.  
 —, analysis of, 1334.  
 —, latent heat of, 1095.

- sulfur dioxide, liquid, manufacture of, 1092.
- , —, Haenish & Schroeder process, 1092.
- , —, Niedenfuhr process, 1093.
- , —, oxidation of, 1346.
- , —, photoelectric phenomena, 1096.
- , —, specific gravity of, 1095.
- , —, vapor pressure, 1093.
- , liquefying, 1095, 1244.
- , manufacture, 1061, 1082, 1087.
- , —, acid catchers, 1186.
- , —, acid-sludge for, 1087.
- , —, alkali waste for, 1085.
- , —, blende for, 1076.
- , —, carbon disulfide for, 1087.
- , —, converters in, 1180, 1181.
- , —, coolers for, 1177.
- , —, copper pyrites for, 1075.
- , —, filters for, 1187.
- , —, forewarmer, 1187.
- , —, galena for, 1081.
- , —, grease catcher in, 1179.
- , —, gypsum for, 1084.
- , —, heat exchangers in, 1179, 1187.
- , —, niter cake for, 1087.
- , —, oxide absorption towers, 1186.
- , —, platinum shafts, 1187.
- , —, pre-heaters for, 1180.
- , —, pressure equalizer in, 1179.
- , —, Schroeder process, 1092, 1161.
- , —, scrubbers for, 1178.
- , —, smoke for, 1086.
- , —, sulfates for, 1084.
- , —, sulfite liquors for, 1086.
- , —, superheater, 1187.
- , —, zinc blende for, 1076.
- , preparation of, 1069, 1400.
- , properties, 1093, 1094, 1095.
- , purifying, 1089, 1178.
- , reduction by carbon to sulfur, 1027.
- , refining petroleum with, 1099.
- , refrigerating by, 1099.
- , cellulose nitrate solvent of calcium and, 2384.
- , solubility of, 1096.
- , sources of, 1057, 1084.
- , specific heat of, 1095.
- , sulfur from, 1027.
- , sulfuric acid from, 1200.
- , sulfur trioxide from, 1102.
- , toxic effect of, 1094.
- , uses, 1099.
- , utilization of, 1400.
- Sulfur heptoxide, 1096.
- Sulfur selenium oxide, 1126.
- Sulfur sesquioxide, 1126.
- Sulfur tellurium oxide, 1126.
- Sulfur tetrachloride, gelatinizing cellulose nitrate by, 2253.
- Sulfur trioxide, 1100, 1399.
- , Sulfur trioxide, 1124.
- ,  $\beta$ -Sulfur trioxide, 1124.
- Sulfur trioxide, absorption of, 1123, 1203.
- , —, Badische process, 1123.
- , acetating cellulose in presence of, 300.
- , boiling point of, 1125.
- , compound of nitric acid and, 1002.
- , compound of nitrogen pentoxide and, 1411.
- , dihydrate of, 1314.
- , hydrates of, 1314.
- , liquid, 1124.
- , manufacture of, 902, 1131.
- , —, absorbing towers, 1155.
- , —, absorption system, 1182.
- , —, Badische process, 1137.
- , —, calcium sulfate fog, 112.
- , —, contact process, 1117.
- , —, coolers, 1181.
- , —, copper sulfate for, 1117.
- , —, Ferguson process, 1201.
- , —, Freiburg process, 1189.
- , —, Meister, Lucius & Bruni process, 1157.
- , —, Rabe process, 1190.
- , —, Raynaud and Pierron process, 1195.
- , —, Stong apparatus, 1197.
- , —, Tentelew process, 1151.
- , monohydrate, 1314.
- , nitric acid compound of, 1002.
- , nitrogen pentoxide compound of, 1002.
- , properties of, 1124.
- , recovery of, 1133.
- , solid, 1125.
- , solubility in water (table), 1524.
- , vapor density, 1124.
- sulfurated polish, see Potassium polysulfide.
- sulfurated hydrogen, see Hydrogen sulfide.
- sulfuric acid, absolute, properties 1314.
- , —, manufacture of, 1382.
- , absorbents for, 1313.
- , absorbing sulfur trioxide in, heat evolved, 1353.
- , absorption nitrogen dioxide by, 1304.
- , accumulator, 1322.



- Sulfuric acid, acetating cellulose in presence of, 3008, 3069.  
 —, acetating hydrocellulose, 149.  
 Sulfuric acid, action of on cellulose, 120, 214.  
 —, on cotton, 118.  
 —, free hydrogen on, 1318.  
 —, on hydrocellulose, 137.  
 —, on iron, effect arsenic on, 1321.  
 —, on metals, 1319.  
 —, on platinum, 1324.  
 —, on silicon-iron, 1322.  
 —, on silk, 113.  
 —, on wool, 118.  
 —, ammonia in, detecting, 1334.  
 —, analysis, 1325.  
 —, benzidene for, 1055.  
 —, arsenic-free, manufacture of, 1345.  
 —, arsenic in, estimating, 1336.  
 —, removing, 1338, 1340.  
 —, barium determination, 1326.  
 —, boiling point of, 1314, 1317.  
 —, boiling points (table), 1534.  
 —, brown, decolorizing, 1348.  
 —, carboys for, 1312.  
 —, catalyst of cellulose by, 192.  
 —, cellulose derivatives of, 324.  
 —, chamber, impurities in, 1337.  
 —, chamber acid, 1009.  
 —, chemically pure, 1345.  
 —, clarifying, 1348.  
 —, color in, removing, 1348.  
 —, combined, detergining, 1910.  
 —, concentrating, 1003, 1350, 1402.  
 —, density of (table), 1530.  
 —, acid circulation, 1379.  
 —, apparatus for, 1351.  
 —, Armstrong system, 1358.  
 —, Benker system, 1368.  
 —, Bohre method, 1518.  
 —, cascade plant, 1371.  
 —, cascade process, 1351.  
 —, cascade system, 1367.  
 —, cast iron for, 1353.  
 —, Delplace system, 1365.  
 —, Dreyfus apparatus, 1357.  
 —, Düron apparatus, 1357.  
 —, electrical, 1380.  
 —, electrostatic precipitation, 1392.  
 —, enamel for, 1363.  
 —, fuel consumption, 1354, 1356.  
 —, Gaillard tower, 1372.  
 —, Gretna plant, 1376.  
 —, Gaillard tower process, 1351.  
 —, gaseous, 1382.  
 —, Gilchrist system, 1393.  
 —, glass vessels for, 1366.  
 Sulfuric acid, concentrating, Hartmann-Benker system, 1367.  
 —, Hughes system, 1367.  
 —, iron for, 1353.  
 —, ironac for, 1003.  
 —, Kessler process, 1351.  
 —, Kessler system, 1383.  
 —, Krell system, 1355.  
 —, lead pans for, 1358.  
 —, Leitch apparatus, 1357.  
 —, Levinstein apparatus, 1369.  
 —, other methods, 1390.  
 —, platinum for, 1364.  
 —, porcelain for, 1363.  
 —, Quinan pan, 1354.  
 —, radiateur for, 1384.  
 —, recuperating tower, 1373.  
 —, saturex, 1384.  
 —, silica vessels for, 1361.  
 —, Stange process, 1357.  
 —, theory of, 1352.  
 —, thermodynamics of, 1352.  
 —, vacuum pan, 1380.  
 —, vacuum retort, 1381.  
 —, vitreosil for, 1362.  
 —, Webb system, 1369.  
 —, contact, 1100.  
 —, history of, 1102.  
 —, containers for, 1312.  
 —, crystals, 1311, 1314.  
 —, de-arsenication of, 1338.  
 —, decolorizing, 1348.  
 —, denitration of, 1440.  
 —, Glover tower for, 1279.  
 —, denitration of nitrous, 1284.  
 —, density of, 1315.  
 —, density, effect arsenous oxide on, 1317.  
 —, effect impurities on, 1316.  
 —, effect nitrous acid on, 1217.  
 —, effect sulfur dioxide on, 1316.  
 —, effect temperature on, 1316.  
 —, hydrometer (table), 1536.  
 —, density of, regulating, 1291.  
 —, detection, 1325.  
 —, determining, 1325, 1511.  
 —, calorimetrically, 1328.  
 —, in cellulose nitrate, 2300.  
 —, electrometrically, 1328.  
 —, gravimetric, 1325.  
 —, hydrometrically, 1328.  
 —, displacement with, 1991.  
 —, dissolving cellulose by, 95, 909.  
 —, dissolving platinum by, 1366.  
 —, dissolving wood pulp by, 268.  
 —, distillation, continuous, 1363.  
 —, distributing, 1272, 1274, 1490, 1491.

- sulfuric acid, distributing, acid eggs, 1274.
- , —, montejus, 1274.
- , electric conductivity, 1405.
- , electrical resistance of, 1314.
- , electrolysis of, 1348.
- , "Englele" 1007.
- , esters, analysis, 1908.
- , estimation in mixed acid, 1507.
- , formylating cellulose in presence of, 3015.
- , free energy of dilution of, 1318.
- , freezing point of, 1317.
- , fuming, 1292.
- , —, analysis, 1328.
- , specific gravity of (table), 1827.
- Sulfuric acid fuming, see also Oleum.*
- , history of, 1007.
- , hydrates of, 1313, 1314.
- , hydrochloric acid in, estimating, 1336.
- , hydrofluoric acid in, estimating, 1336.
- , —, removal of, 1348.
- , hydrolyzing cellulose by, 205.
- , impurities in, 1316, 1336.
- , —, detecting, 1334.
- , impurities, gaseous, detecting, 1334.
- , indicators for estimating, 1327.
- , iron in, detecting, 1334.
- , —, estimating, 1336.
- , lead in, estimating, 1337.
- , —, removing, 1348.
- , manufacture of, acid distribution, 1272.
- , —, aluminous schist for, 1297.
- , —, alum shale for, 1297.
- , —, alunite for, 1297.
- , —, ammonium sulfite for, 1295.
- , —, anhydrite for, 1300.
- , —, Badiache process, 1109.
- , —, brimstone for, 1043.
- , —, by-products in, 1310.
- , —, calcium sulfate for, 1129, 1297, 1300.
- Sulfuric acid, manufacturing, catalysts for, see Catalyst.*
- , —, chambers, Meyer tangential, 1243.
- , —, chamber acid, 1009.
- , —, chamber fittings, 1226.
- , —, chamber process, 1008, 1407.
- , —, —, acid dishes, 1226.
- , —, —, acid distribution, 1272.
- , —, —, acid drips, 1226.
- , —, —, acid mist, condensation, 1251.
- Sulfuric acid, manufacturing, chamber process, air circulation, 1239.
- , —, —, air required, 1239.
- , —, —, air supply to, 1237.
- , —, —, American practice, 1205.
- , —, —, analysis exit gases, 1252.
- , —, —, anemometers for, 1240.
- , —, —, combined with contact process, 1288.
- , —, —, draught in, 1238, 1240.
- , —, —, early, 1007.
- , —, —, feed acid distribution, 1272.
- , —, —, fittings, 1226.
- , —, —, gas circulation, 1250.
- , —, —, gas distribution, 1247, 1248.
- , —, —, gas motion, 1250.
- , —, —, Gay-Lussac tower, 1202.
- , —, —, graphic working of, 1251.
- , —, —, intensive working, 1242.
- , —, —, piter deficiency, 1246.
- , —, —, niter losses, 1247.
- , —, —, niter supply, 1227.
- , —, —, operating, 1244.
- , —, —, operating, irregularities, 1246.
- , —, —, pressure in, 1227.
- , —, —, quality of, 1226.
- , —, —, reaction towers, 1217.
- , —, —, recovery nitrogen compounds, 1261.
- , —, —, reduction of space, 1242.
- , —, —, relative advantages, 1289.
- , —, —, repairs in, 1245.
- , —, —, speed acid formation, 1247.
- , —, —, sprays, 1235.
- , —, —, —, arrangement, 1236.
- , —, —, steam sprays, 1236.
- , —, —, tell-tales, 1226.
- , —, —, temperatures, 1246.
- , —, —, testing gases in, 1248.
- , —, —, theory of, 1254.
- , —, —, tower packing, 1267.
- , —, —, water sprays, 1236.
- Sulfuric acid, manufacture, chamel process, see also Chamber process.*
- , —, —, chamber towers, 1217.
- , —, —, coke towers, 1220.
- , —, —, concentrating, 1402.
- , —, —, contact, 1102, 1109, 1109, 1399.
- , —, —, apparatus for, 1106.
- , —, —, Badiache process, 1137.
- , —, —, burner gas purification, 1108.
- , —, —, drying gases, 1110.

- Sulfuric acid, manufacture, contact, effluents from, 1124.  
 —, —, Freiburg process, 1180.  
 —, —, Herreshoff process, 1202.  
 —, —, Meister, Lucius & Brinigg process, 1157.  
 —, —, methods for, 1107.  
 —, —, platinum loss in, 1115.  
 —, —, poisons in, 1158.  
 —, —, purifying gases in, 1110.  
 —, —, Rabe process, 1190.  
 —, —, Tentelew process, 1151.  
 —, —, theory of process, 1106, 1133.  
 —, —, U. S. processes, 1191.  
 —, —, yields in, 1106.  
 —, —, contact and chamber process combined, 1288.  
 —, —, copper recovery in, 1310.  
 —, —, copper smelter gases for, 1294.  
 —, —, copper sulfate for, 1295.  
 —, —, early, 1007.  
 —, —, early English processes, 1010.  
 —, —, electrical processes, 1122.  
 —, —, electrolytic processes, 1303.  
 —, —, electrostatic precipitation, 1373.  
 —, —, Falding chamber, 1213.  
 —, —, Freiburg process, 1189.  
 —, —, fuming, plant tests, 1127.  
 —, —, Gaillard tower, 1372.  
 —, —, gases in, purifying, 1167.  
 —, —, Gay-Lussac tower, 1262.  
 —, —, constructing, 1263.  
 —, —, operating, 1266.  
 —, —, packing of, 1263.  
 —, —, unpacking, 1264.  
 —, —, glauberite for, 1297.  
 —, —, Glover tower, 1204, 1276.  
 —, —, operating, 1282.  
 —, —, packing for, 1279.  
 —, —, steam for, 1234.  
 —, —, temperatures in, 1284.  
 —, —, water used, 1234.  
 —, —, gypsum for, 1296, 1300.  
 —, —, Harris - Thomas chamber, 1210.  
 —, —, hydrogen sulfide for, 1290, 1296.  
 —, —, intermediate reaction towers, 1217.  
 —, —, iron recovery in, 1310.  
 —, —, kieserite for, 1297.  
 —, —, lead chambers, construction 1206.  
 —, —, erection, 1207.  
 —, —, Meyer, 1215.  
 —, —, pressure in, 1227.  
 —, —, substitute for, 1222.  
 Sulfuric acid, manufacture, lead chambers, tangential, 1215.  
 —, —, temperature of, 1227.  
 —, —, water supply, 1232.  
 Sulfuric acid, lead chambers for, see also Lead chambers.  
 —, —, lead chamber process, 1008, 1203.  
 Sulfuric acid, manufacture, lead chamber process, see also Lead chambers.  
 —, —, Lunge towers, 1217.  
 —, —, Mills-Packard chamber, 1214.  
 —, —, Moritz chambers, 1212.  
 —, —, Niedenführ chamber, 1213.  
 —, —, niter cake for, 800, 803, 1300.  
 —, —, niter supply, 1227.  
 —, —, nitrogen compounds recovery 1284.  
 —, —, nitrogen oxide supply, 1227.  
 —, —, nitrogen oxides in, 1304.  
 —, —, operating Gay-Lussac towers 1266.  
 —, —, Opl tower, 1221, 1225.  
 —, —, plate towers, 1217.  
 —, —, potting process, 1227.  
 —, —, pyrites for, 1043.  
 —, —, reaction towers, intermediate, 1217.  
 —, —, Moritz, 1213.  
 —, —, recovery nitrogen compounds, 1284.  
 —, —, Schroeder-Grillo process, 1161.  
 —, —, coal used, 1173.  
 —, —, Indian Head plant, 1171.  
 —, —, preparation contact mass, 1183.  
 —, —, Queen's Ferry plant, 1173.  
 —, —, yields, 1174.  
 —, —, selenium recovery in, 1310.  
 —, —, silicates for, 1299.  
 —, —, silver recovery in, 1310.  
 —, —, smelter gases for, 1294.  
 —, —, sodium sulfate for, 1297.  
 —, —, statistics, 1009.  
 —, —, tangential chambers, 1243.  
 —, —, thallium recovery in, 1310.  
 —, —, tower system, Greisheim, 1224.  
 —, —, various processes, 1289, 1291, 1294.  
 —, —, zinc recovery in, 1310.  
 —, —, measuring, 755.  
 —, —, mercerizing by, 229.  
 —, —, mercury in, estimating, 1336, 1337.  
 —, —, mist, determination of, 1327.  
 —, —, precipitating, 1393.  
 —, —, separating, 1091.

- Sulfuric acid, mixing, rules for, 1311.  
 —, mixture of nitric acid and, 1403.  
 —, mixtures nitric acid and conductivity of, 1403.  
 —, —, vapor density of, 1403.  
 —, *sulfuric acid, mixtures of, nitric acid, and, see also Mixed acid.*  
 —, mixtures of oleum and, preparing, 1310.  
 —, monohydrate, manufacture of, 1382.  
 —, —, properties, 1311.  
 —, nitrogen oxide in, removing, 1347.  
 —, nitrous, nitric acid from, 1000.  
 —, Nordhausen, 1292.  
 —, organic matter in, removing, 1348.  
 —, partial pressure of, with nitric acid, 1403.  
 —, precipitating, barium chloride for, 1053.  
 —, production, 1009.  
 —, properties, 1311, 1313.  
 —, pumping, 1274.  
 —, pure, manufacture of, 1345.  
 —, purifying, electrolytic, 1348.  
 —, recovery of, 947.  
 —, recovery alcohol by, 2557.  
 —, recovery from niter cake, 790.  
 —, red, purifying, 1349.  
 —, reduction by carbon monoxide, 1312.  
 —, refractive index of, 1318.  
 —, selenium in, estimating, 1336.  
 —, —, removal of, 1349.  
 —, sensible heat of water and (table), 1540.  
 —, separating nitric acid from, 1426.  
 —, shipping, 1312.  
 —, solid, 1311.  
 —, —, niter cake for, 1789.  
 —, solidified, 1314.  
 —, solubility cellulose in, 1909.  
 —, solubility NO in, 1304.  
 —, solubility silicon-iron alloys in, 957.  
 —, specific gravity of, 1311.  
 —, specific gravity of (table), 1530, 1535.  
 —, specific gravity, temperature corrections (table), 1537.  
 —, specific heat of, 1318.  
 —, statistics, 1009.  
 —, storage of, 755, 960, 1312, 1459.  
 —, strength of, determining, hydrometric, 1315.  
 —, strontium determination, 1323.  
 —, sulfur dioxide liquid from, 1022.  
 Sulfuric acid, sarracene, tension of, 1318.  
 —, tank cars for, 1312.  
 —, testing, heat rise method, 1402.  
 —, thermal data on, 1314, 1315.  
 —, thermal properties of, 1318, 1539.  
 —, thermal properties water and (table), 1539.  
 —, titrating, 1327.  
 —, —, lead nitrate for, 1028.  
 —, transfer of, 1487.  
 —, transporting, 900, 1012.  
 —, —, absorbent for, 949.  
 —, vapor density of, 1312.  
 —, vapor pressure of, 1314, 1317, 1404.  
 —, viscosity of, 1318.  
 —, volumetric determination, 1327.  
 —, waste, recovering, 843, 1306.  
 —, waste pickle, recovery of, 1309.  
 —, weight of (table), 1532.  
 —, *Sulfuric anhydride, see Sulfur trioxide.*  
 Sulfuric ester, cellulose, 1907.  
 Sulfuric ether, *see Ethyl ether; Diethyl ether.*  
 Sulfurimeter, 1034.  
 Sulfurous acid, manufacture of, 1061.  
 —, obtaining, 1087.  
 —, oxidation, electrolytic, 1087.  
 —, *Sulfurous acid, see also Sulfur dioxide.*  
 Sulfuryl chloride, formylating cellulose in presence of, 3016.  
 —, gelatinizing cellulose nitrate by, 2253.  
 Sumac, dry plate preservative, 2834.  
 Sumatra camphor, *see Borneol.*  
 Sun, pelignite, 2972.  
 Sunlight, *see Light.*  
 Sunshade tips, celluloid, 2712.  
 Superphosphate, niter cake for, 1000.  
 Superphosphates, sulfuric acid for, 1350.  
 Super riprite, 2974.  
 Supersulfate, manufacture of, 949.  
 Surat cotton, composition of, 531.  
 —, constants of, 506.  
 Surat cotton, *see also Cotton, Surat.*  
 Surgery, celluloid in, 2740.  
 Surgical skin varnish, 2795.  
 Surgical splints, celluloid, 2743.  
 —, *Suspensory bandages, see Bandages, suspensory.*  
 Suture plate, celluloid, 2741.  
 S. V. powder, 2930.  
 Sweet bands, celluloid for water-proofing, 2762.  
 Sweet potatoes, starch from, 461.  
 Swiss powder, 2930.  
 Styvestrene, 2519.

- Synantherææ, 1619.  
 Synanthrose, 1619.  
 —, nitration of, 1619.  
 Syndite, 2974.  
 Synthetic acetic acid, *see* Acetic acid, synthetic.  
 Synthetic camphor, *see* Camphor, synthetic.  
 Synthol, 2409.  
 Syringes, celluloid, 2740.  
 Syrolet, 2603.  
 Syrup, dry plate preservative, 2828.  
 Syrup, nitration of, 1804.  
 Tagua palm, mannoze in seeds of, 1862.  
 Tahiti cotton, constants of, 505.  
 Takadiastase, 475.  
 —, activity of, in presence of cellulose nitrate, 1770.  
 Tallol, 1870.  
 Tallow, paint remover containing, 2565.  
 Tamarack, composition of, 261.  
 Tamidine, 1693.  
 Tampon introducers, celluloid, 2742.  
 Tanacetone, 2393.  
 Tanacetone, *see also* Thujone.  
 Tanacetyl alcohol, 2393.  
 Tangential chambers, 1215.  
 Tank cars, transporting sulfuric acid in, 1312.  
 Tanks, acid, storage, 1478.  
 Tanks, blending, *see* Blending tanks.  
 —, settling, 2068.  
 Tannette, 2605.  
 Tannin, *see* Acetyltannin.  
 Tannin, 411, 2969.  
 —, action of, on cellulose, 61.  
 —, addition to iodizer, 2822.  
 —, coloring celluloid by, 1896.  
 —, dry plate preservative, 2828, 2831, 2833.  
 —, filaments of, 2846.  
 —, preserving collodion emulsions by, 2846.  
 —, preserving collodion emulsions by morphine and, 2846.  
 —, rendering cellulose nitrate astringent, 2791.  
 —, rendering phenol astringent by, 2791.  
 —, smokeless powder containing, 1637.  
 —, starch and, 416.  
 Tannin, *see also* Gallotannic acid; Tannic acid.  
 Tanning, softening hides by sulfur dioxide, 1099.  
 Tanning extract, manufacture from sulfite lye, 284.  
 Tannobromide collodion, 2795.  
 Tannogelatin, 2964.  
 Tannohymal, *see* Tannohymolthane.  
 Tantalum, catalyst, 1122.  
 —, fixation nitrogen with, 689.  
 —, oxidizing ammonia by, 905.  
 —, promotor of, 937.  
 Tantiron, 956, 957, 1921.  
 Tar, carbohydrate distillation, 41.  
 —, cellulose distillation, 41.  
 —, determining in niter cake, 811.  
 —, starch distillation, 41.  
 —, sugar distillation, 41.  
 Tartar emetic, mordanting with, 282.  
 Tartaric acid, 2821, 2822.  
 —, absorption cellulose by tannin and, 62.  
 —, action of, on cellulose, 110, 120.  
 —, —, on cotton, 110.  
 —, cellulose nitrate decomposition product, 1708.  
 —, cellulose nitrate solvent of alcohol and, 2388.  
 —, effect of on viscosity cellulose acetate, 1739.  
 —, effect of on viscosity cellulose nitrate, 1739.  
 —, paint remover containing, 2563.  
 Tartaric acid (inactive), *see* Racemic acid.  
 Tartaric ether, *see* Ethyl tartrate.  
 Tartrates, inflammability reducer, 1704.  
 Tartrazine, 2875.  
 Tauxe matt paper, 2855.  
 Tea, dry plate preservative, 2833.  
 Tea process, 2833.  
 Teeth, artificial, cellulose nitrate for, 2574.  
 Tellurium, catalyst inhibitor, 905.  
 —, contact poison, 1158.  
 —, oxidizing ammonia by, 896.  
 Tellurium compounds, 1122.  
 —, catalyst, 1122.  
 Temperature, constant, Brann apparatus, 2340.  
 Tennessee cotton, constants of, 505.  
 Tennis balls, celluloid for, 2722, 2728.  
 Teramyl acetate, dissociation of, 2487.  
 Terebinthene, *see* Pinene.  
 Terebinthic acid, *see* Terebinic acid.  
 Terephthalic acid, 2517.  
 Terpene, 2517.  
 —, cellulose solvent, 2549.  
 Terpene alcohol, 2517.

- erpene, oxidation, aerial, 2904.  
*erpinol* "Lilacine," see *Terpineol*.  
*erpin hydrate*, 2517.  
*erpinene*, 2519.  
*erpinene*, cellulose ester solvent, 2552.  
*erpineol*, cellulose ester solvent, 2548, 2549.  
 —, paint remover containing, 2507.  
*erpinolene*, 2519.  
*erpinyl acetate*, cellulose ester solvent, 2539.  
*erpinyl acetate*, cellulose ester solvent, 2539.  
*erpinyl propionate*, cellulose ester solvent, 2539.  
*ertiary alcohol*, cellulose ester solvent, 2552.  
*est papers*, collodion, 1776.  
 —, Guttman, preparing, 2336.  
 —, Spica, preparing, 2337.  
*etanus*, collodion tubes for filtration of, 1773.  
*etanus*, toxin, 1773, 1774.  
*tetracetylcellulose*, see *Cellulose tetracetal*.  
*tetracetylactose monoacetate*, cellulose ester solvent, 2549.  
*tetracetylactose heptaacetate*, cellulose ester solvent, 2549.  
*tetracetylactose octoacetate*, cellulose ester solvent, 2549.  
*tetracetylactose tetraacetate*, cellulose ester solvent, 2549.  
*tetracetyl mannite*, see *Mannite tetracetal*.  
*tetracetyloctonitrocellulose*, reducing inflammability cellulose nitrate by, 1790.  
*tetrabromfluorescein*, 2871.  
*tetrabromfluorescein ethyl ether*, 2871.  
*tetrabromfluorescein*, see also *Eosine*.  
*tetrabromdichlorfluorescein*, 2871.  
*tetrabromdinitrofluorescein*, 2871.  
*tetrabromdiphenylamine*, 2336.  
*tetrachlorethane*, 2387, 3058.  
 —, cellulose acetate solvent, 3029, 3032.  
 —, cellulose nitrate solvent of Venica turpentine and, 2394.  
 —, dissolving cellulose acetate by, 3022.  
 —, treating cotton with, 590.  
*tetrachlorethane is Acetylene tetrachloride*.  
 —, see *Carbon tetrachloride*.  
*tetrachlorethylacetamide*, cellulose acetate solvent, 3039.  
*tetrachlorethylene*, see *Carboy bichloride*, *Perchlorethylene*.  
*tetrachlorethylene dichloride*, see *Carbon tetrachloride*.  
*tetrachlorinated ethane*, see *Tetrachlorethane*.  
*tetrachloromethane*, see *Carbon tetrachloride*.  
*tetrachloroquinone*, see *Chloranil*.  
*tetraethylammonium iodide*, 2810.  
*tetraethylglycol*, cellulose ester solvent, 2539.  
*tetraethyl silicate*, reducing inflammability cellulose nitrate by, 1788.  
*tetrahydromethylpropylbenzene*, cellulose ester solvent, 2548.  
*tetrahydronaphthalene*, turpentine substitute containing, 2509.  
*tetrahydro-β-naphthylamine*, see *Hydronaphthylamine*.  
*tetrahydroxyketoheptene*, 18.  
*tetraiodofluorescein*, 2871.  
*tetraiodofluorescein*, see also *Erythrosine*.  
*tetraiodopyrrol*, cellulose nitrate and, 2702.  
*tetralin*, 2509.  
 —, turpentine substitute containing, 2509.  
*sym-Tetramethylbenzene*, see *Durene*.  
*tetramethylbenzol*, see *Durene*.  
*tetramethylnaphthalene*, cellulose ester solvent, 2540.  
*tetramethylenediamine*, dissolving cellulose by copper and, 72.  
*tetramethylethyleneglycol*, see *Pinacone*.  
*tetranitraniline*, transporting, 1928.  
*tetranitraniline*, see also *Nitraniline*, *Utra*.  
*tetranitroanthraquinone*, see *Aloetic acid*.  
*tetranitrocellulose*, 1644, 1650.  
*tetranitrochrysin*, see *Chrysaminic acid*.  
*tetranitrodioxanthraquinone*, see *Chrysaminic acid*.  
*tetranitroethylaniline*, detonator 1758.  
*tetranitroerythrite*, 1857.  
*tetranitromethane*, 2389, 2392.  
*tetranitromethylaniline*, 1859, 1860  
 —, detonator, 1858.  
 —, transporting, 1929.  
*tetranitrostarch*, 1824.  
*tetraphenyl cellulose*, 3021.  
 —, sulfated, 3021.  
*tetraphenyl-urea*, cellulose ester solvent, 2552.

- Tetrasaccharide, 7.  
 Tetrose, 6, 7.  
 Tetraoxydiphenyl, *see* Diresarcin.  
 Tetraoxystearinic acid, *see* Tetraoxystearic acid.  
 Tetraoxym, 2667.  
 Texas cotton, constants of, 505.  
 —, wax in, 635.  
 Texene, 2569.  
 Texene, turpentine substitute containing, 2569.  
 Texol, 2602.  
 Textiles, cellulose nitrate, applied to, 2381.  
 —, fixing viscose on, 3081.  
 —, printing upon, cellulose nitrate for, 2600.  
 —, Schreiner finish, cellulose nitrate for, 2599.  
 —, stiffening, starch for, 426.  
 —, waterproofing, cellulose acetate for, 3057.  
 Textile, *see also* Fabrics.  
 Textile bleaching, niter cake in, 793.  
 Textile cements, *see* Cements, textile.  
 Textile fibers, double refraction in, producing, 48.  
 Textiloid, 2603.  
 Textilose, 337, 2642.  
 Thallium, pyrites containing, 1047.  
 —, recovery in sulfuric acid manufacture, 1310.  
 Thanatol, *see* Pyrocatechin monomethyl ether.  
 Theine, *see* Caffeine.  
 Thermometer protectors, celluloid, 2742.  
 Thermoplastic, *see* Plastic.  
 Thermoplastic cellulose acetate, *see* Cellulose acetate, thermoplastic.  
 Thermoplastics, colloiding, 2535.  
 Thiazol yellow, 2872.  
 Thiazol yellow G, 2872.  
 Trimble, celluloid, 2712.  
 Trimble blank, celluloid, 2712.  
 Thin-boiling starch, *see* Starch, soluble.  
 Thioacetaldehyde, *see* Sulfaldehyde.  
 Thioalcohol, *see* Ethyl mercaptan.  
 Thioallyl ether, *see* Allyl sulfide.  
 Thiocarbamide, determination of nitrites by, 962.  
 Thiocarbonyl chloride, *see* Thiophosgene.  
 Thiocyanates, dissolving cellulose by, 106.  
 —, recovery of, 1085.  
 Thiocytic acid, action of, on cotton, 1107.  
 Thiogen process, 1027.  
 Thionic acid, 1026.  
 Thionyl chloride, gelatinizing cellulose nitrate by, 2253.  
 Thio-*oxy*-diphenylamine, *see* Sulphaminol.  
 Thiophene, reaction with lignocellulose, 262.  
 Thiosinamine, *see* Allyl sulfo carbamide.  
 Thiourea, manufacture of, 933.  
 —, nitrostarch stabilizer, 1828.  
 —, treating viscose with, 3074.  
 Thiourea, *see also* Thiocarbamide.  
 Thomas stability test, 2347.  
 Thoria, *see* Thorium oxide.  
 Thoria, oxidizing ammonia by, 896.  
 Thorium, catalyst, 917.  
 Thorium oxide, catalyst, 1122, 1158, 1296.  
 Thread, celluloid coated, 2710.  
 —, coating, cellulose nitrate for, 2599, 2655.  
 —, coating, viscose for, 3082.  
 —, ring spinning of, celluloid traveler for, 2710.  
 Thread, *see also* Filaments, artificial.  
 Thread reels, celluloid, 2729.  
 Thujene, 2519.  
 Thujone, cellulose ester solvent, 2543.  
 Thyme camphor, *see* Thymol.  
 Thymic acid, *see* Thymol.  
 Thymochinone, cellulose ester solvent, 2549.  
 Thymol, 417.  
 —, cellulose acetate solvent, 3027.  
 —, cellulose ester solvent, 2549.  
 —, cellulose nitrate and, 2791.  
 —, reaction with lignocellulose, 262, 263.  
 $\alpha$ -Thymol-sulfonic acid, *see* Thymolsulfonic acid.  
 Thymol trichloracetate, 2391.  
 Thymyl acetate, *see* Acetyl thymol.  
 Thyrsol, *see* Santalol methyl ether.  
 Tiles, waterproofing, celluloid lacquers for, 2579.  
 Tin, catalyst inhibitor, 905.  
 —, extraction, niter cake for, 802.  
 Tin chloride, action of, on starch 441.  
 —, artificial coral containing, 2720.  
 —, dissolving cellulose by, 105.  
 —, in (ic) chloride, 501.  
 —, cellulose acetate solvent, 3046.  
 —, dissolving cellulose by, 67, 104.  
 Tin (ous) chloride, 2315.  
 —, decreasing inflammability of cellulose nitrate by, 1780.  
 —, dissolving cellulose by, 67.

- Tin chromite, catalyst, 1120.  
 Tin (ous) sulfate, 2316, 2317.  
*Tin tetrachloride, see Tin (ic) chloride.*  
*Tincture opium, see Laudanum.*  
 Tinnevely cotton, constants of, 508.  
*Tintometer, see Lovibond tintometer.*  
 Tintypes, 2849.  
 Fire rims, celluloid, 2698.  
 Fires, impregnating, cellulose acetate for, 3050.  
 —, wheel, cellulose nitrate for, 2599.  
 Tissue, explosive, 1693.  
*Tissue paper, see Paper, tissue.*  
 Titanite, 1874.  
 Titanium, 1880.  
 Titanium, catalyst, 916, 918, 940, 1120.  
 Titanium, catalyst of oxides of, 702  
 —, salts of, action on cellulose, 112.  
 Titanium chloride, 181.  
 —, catalyst, 917.  
 Titanium (ic) chloride, dissolving cellulose by, 67, 109.  
 Titanium (ous) chloride, 178, 180, 739.  
 —, determining nitrogen by, 738.  
 —, titrating with, 1333.  
 Titanium (ous) hydroxide, 739.  
 Titanium nitride, manufacture of, 923  
 —, manufacture of ammonia from, 918.  
 Titanium oxide, catalytic action of, 1158.  
 —, catalyst of, 1111.  
 Titanium (ous) salts, dissolving cellulose in cuprammonia by, 71.  
 Titanium sulfide, catalyst, 917.  
 Titanium tetrachloride, 2589, 2590.  
*Titanium tetrachloride, see also Titanium (ic) chloride.*  
*Titanous, see Titanium (ous).*  
 Titan powder, 2975.  
 Tobacco, dry plate preservative, 2833, 2834.  
 Tobacco leaves, starch from, 446.  
 Tolhurst dehydrating centrifugal, 2121.  
*o-Tolidin, see Tolidin.*  
 Tologen, 2564.  
 Toluamid, nitrostarch stabilizer, 1828.  
*Toluenetoluidine, see o-Amido-azo-toluene.*  
 Tolu balsam, dry plate preservative, 2830.  
 Toluene, 2269, 2252.  
 —, cellulose nitrate gelatinizer, 1886.  
 —, extracting impurities in cellulose nitrate by, 2031.  
 —, nitration of, 1425, 1447.  
 Toluene, nitration of, waste acid from, recovery, 1424.  
 —, removal of moisture in cellulose by, 512.  
 —, treatment of cellulose by, 236.  
 Toluene benzylnitrochloride, cellulose ester solvent, 2540.  
 Toluene bromide, cellulose ester solvent, 2540.  
 Toluene chloride, cellulose ester solvent, 2540.  
 Toluene - o - monoethyl sulfonamide, 2608, 2609, 3039.  
 Tolfene nitrobromide, cellulose ester solvent, 2540.  
 Toluene nitrochloride, cellulose ester solvent, 2540.  
 p-Toluenesulfamide, cellulose ester solvent, 2547, 3040.  
 p-Toluenesulfamido acetic acid, cellulose ester solvent, 2547.  
 p-Toluenesulfamido ethyl ester, cellulose ester solvent, 2547.  
 p-Toluenesulfocyclohexylether, cellulose ester solvent, 2547.  
 p-Toluenesulfanilid, cellulose ester solvent, 2547.  
*Toluenesulfocellulose, see Cellulose toluenesulfonate.*  
 p-Toluenesulfo - p - chloranilid, cellulose ester solvent, 2547.  
 p-Toluenesulfocresol, cellulose ester solvent, 2547.  
 p-Toluenesulfocyclohexylamine, cellulose ester solvent, 2545.  
 p-Toluenesulfo diethylamid, cellulose ester solvent, 2547.  
 p-Toluenesulfodicyclohexylamine, cellulose ester solvent, 2548.  
 p-Toluenesulfodiphenylamin, cellulose ester solvent, 2547.  
 p-Toluenesulfoethylamid, cellulose ester solvent, 2547.  
 p-Toluenesulfoethylanilid, cellulose ester solvent, 2547.  
 p-Toluenesulfomethylanilid, cellulose ester solvent, 2547.  
 p-Toluenesulfomonoethylamid, cellulose ester solvent, 2547.  
 p-Toluenesulfo - a - naphthol, cellulose ester solvent, 2547.  
 p-Toluenesulfo - b - naphthol, cellulose ester solvent, 2547.  
 p-Toluenesulfo - a - naphthylamin, cellulose ester solvent, 2547.  
 p-Toluenesulfo - b - naphthylamin, cellulose ester solvent, 2547.  
 Toluene - p - sulfonyl chloride, cellulose ester of, 1904.



- p*-Toluenesulfo-*o*-phenetidin, cellulose ester solvent, 2547.  
*p*-Toluenesulfo-*p*-phenetidin, cellulose ester solvent, 2547.  
*p*-Toluenesulfonylhydrazin, cellulose ester solvent, 2547.  
*p*-Toluenesulfo-*m*-xylylid, cellulose ester solvent, 2547.  
*Toluene trichloride*, see *Benzotrichloride*.  
*α-Toluic acid*, see *Phenylacetic acid*.  
 Toluidine, 2528.  
 —, dissolving cellulose acetate by, 3007.  
*α-Toluidine*, reaction with lignocellulose, 262.  
 Toluidine hydrochloride, nitrostarch stabilizer, 1828.  
 Toluidine nitrate, nitrostarch stabilizer, 1828.  
 Toluidine oxalate, nitrostarch stabilizer, 1828.  
 Toluidine sulfate, acetating cellulose in presence of, 3010.  
 —, nitrostarch stabilizer, 1828.  
*Toluol*, see *Toluene*.  
*Toluene*, see *Stilbene*.  
 Tolylenediamine and thallic sulfate, reaction with lignocellulose, 262.  
*m-Tolylenediamine*, see *1,3,5-Tolylenediamine*.  
*o-Tolylenemethenylamine*, cellulose ester solvent, 2544.  
*α-Tolylic acid*, see *Phenylacetic acid*.  
 Tolyacetamide, see *o-Acetylouide*.  
 Tolyantipyrene, see *Tolypyrene*.  
 Toly-1-desoxyn, 236.  
*p-Tolyldimethylpyrazole*, see *Tolypyrene*.  
*p-Tolyldimethylpyrazole salicylate*, see *Tolysal*.  
 Tolyldimethylpyrazolone, cellulose ester solvent, 2545.  
*p-Tolyethyl alcohol*, 2388.  
 Tolyethylurethane, 1736.  
 Tolypyrrin, cellulose ester solvent, 2545.  
 Tolypyrrin salicylate, cellulose ester solvent, 2545.  
*Tolypyrrine salicylate*, see also *Tolysal*.  
 Tolysal, cellulose ester solvent, 2545.  
 Tongue depressor, celluloid, 2742.  
 Tonite, 2975.  
 —, stability, determining, 2328.  
 Tonite 2, 2975.  
 Tonite 3, 2975.  
 Toning, gold for, 2857.  
 —, platinum for, 2858.  
 Toothache, cellulose nitrate for, 2738.  
 Tooth brush, celluloid, 2713.  
 Tooth brush case, celluloid, 2717.  
 Toothpicks, celluloid, 2696.  
 Toothpick case, celluloid, 2740.  
 Toovtype, 2850.  
 Tops, spinning, celluloid, 2729.  
 Tsupee, celluloid, 2702.  
 Torpedo, collodion coated, 1623.  
*α-Torpedoes*, Austrian, 2186.  
 —, cellulose nitrate, for, 2986.  
 —, cellulose nitrate, manufacture of, dangers in, 1927.  
 Tortoise shell, imitation, celluloid for, 2721.  
 Totten's gunpowder, 2943.  
 Tow, nitrating, 1878.  
 Towers, absorption, 838.  
 —, —, acid distribution, 1272.  
 —, —, packing for, 1267.  
 —, coke, 1220.  
 —, denitrating, 1284, 1448.  
 —, Greisheim, 1224.  
 —, Hacker-Gilchrist, 1221.  
 —, Lunge, 1217.  
 —, Opl, 1221, 1225.  
 —, packing for, 1267, 1277.  
 —, —, Guttman, 1268.  
 —, —, Lunge plates, 1271.  
 —, —, Petersen, 1268.  
 —, —, Raschig, 1268.  
 Towers, plate, 1217.  
 —, —, condensing acid with, 845.  
 —, reaction, 1217.  
 —, —, packing for, 1267.  
 —, —, distributors, liquid for, 1271.  
*Tower packing*, see *Towers, packing for*.  
 Toxins, collodion tubes for filtration of, 1773.  
 —, dialysis of, collodion tubes for, 1773.  
 Toys, celluloid, 2728.  
 "TNT," see *Trinitro-toluene (sym.)*.  
 T. powder, 2976.  
 Trace tests, 2324.  
 Tragacanth, 7, 12, 173, 1569.  
 Transfers, celluloid, 2748.  
 —, collodion, 2628.  
 Transfer process, photo, 2881.  
 —, viscose for, 3080.  
 Transparencies, collodion, 2865.  
 —, celluloid, 2917.  
 —, stereoscopic, 2865.  
 —, window, 2865.  
*Transparent paper*, see *Paper, transparent*.  
 Trauzl's dynamite, 2976.  
 Travelers alcohol, cellulose nitrate for, 2598.

- Trachea*, grafting, cellulose nitrate for, 1890.  
*Trehalase*, 189.  
*Trehalose octonitrate*, 1848.  
*Tremoulin* VII, 2976.  
*Trex* agitator, 1313.  
*Trepining*, celluloid in, 2741.  
*Triacetate of dulcits*, see *Dulcits triacetate*.  
*Triacetic cellulose*, see *Cellulose acetate*.  
*Triacetin*, 2278, 2391.  
 —, cellulose acetate solvent, 3033, 3084.  
 —, cellulose ester solvent, 2537.  
 —, cellulose nitrate solvent, 2384.  
*Triacetin*, see also *Glyceryl triacetate*.  
*Triamidodiphenylolglycarbinol*, see *Rosaniline*.  
*Tri-ammonium citrate*, nitrostarch stabilizer, 1828.  
*Triamylolse*, 7.  
*Tribasic formic ether*, see *Ethyl o-formate*.  
*Tribenzaldiamine*, see *Hydro-benzamide*.  
*Tribenzylidenediamine*, see *Hydrobenzamide*.  
*Tribromacetaldehyde*, see *Bromal*.  
*Tribromaldehyde*, see *Bromal*.  
*Tribromaniline hydrobromate*, see *Bromamide*.  
*Tribromhydri*., see *Allyl tribromide*.  
*Tribrommononitrofluorescein*, 2871.  
*Tribromomethane*, see *Bromoform*.  
*Tribromopropane*, see *Allyl tribromide*.  
*Tribrompropenyl*, see *Allyl tribromide*.  
*Tributyryne*, see *Butyryne*.  
*Tributyryl derivative of glycerol*, see *Butyryne*.  
*Tricarbinide*, see *Cyanuric acid*.  
*Trichloracetic acid*, acetating cellulose in presence of, 3011.  
*Trichloracetic acid*, action of, on cellulose, 120.  
 —, dissolving cellulose by, 110.  
*Trichloracetic aldehyde*, see *Chloral*.  
*Trichloracetic ether*, see *Ethyl tri chloracetate*.  
*Trichloraldehyde*, see *Chloral*.  
*Trichloraldehydeoxyphenyl dimethyl pyrazol*, see *Hypnot*.  
*Trichloramidoethylic alcohol*, see *Chloral ammonio*.  
*Trichloraniline*, cellulose acetate solvent, 3038.  
*Trichlorobutyric aldehyde*, see *Butyl chloral*.  
*Trichlorethane*, purifying, bottom by, 562.  
*Trichlorethane*, see also *Methyl chloroform*.  
*Trichloroethylamidine*, cellulose ester solvent, 2547.  
*Trichlorethylene*, 670.  
 —, cellulose acetate solvent, 3022, 3039.  
 —, recovery solvents by, 2557.  
*Trichlorethylideneimide*, see *Chloral oxide*.  
*Trichlorolactonitrile*, see *Chloral hydrocyanate*.  
*Trichloromethane*, see *Chloroform*.  
*Trichloromethylacetanilid*, cellulose acetate solvent, 3038.  
*Trichloronitromethane*, 1780.  
*Trichloronitromethane*, see also *Chloropicrine*.  
*Tricresyl borate*, incombustible celluloid by, 3043.  
*Tricresyl phosphate*, cellulose acetate solvent, 3032, 3034.  
*Tricyanic acid*, see *Cyanuric acid*.  
*Tri-dimethylcyclohexyl carboxylic acid*, cellulose ester solvent, 2548.  
*Triethyl citrate*, cellulose ester solvent, 2537.  
*Triethyl ether of citric acid*, see *Ethyl citrate*.  
*Triformin*, see *Glyceryl formate*.  
*Trihydrated valeric acid*, see *iso-Valerianic acid*, hydrated.  
*Trihydroxy-anthraquinone*, (1,2,3), see *Anthragallol*.  
*Trihydroxy-anthraquinone* (1,2,6), see *Flavopurpurin*.  
*Trihydroxy-anthraquinone* (1,2,7), see *Anthrapurpurin*.  
*Trihydroxybenzene*, cellulose ester solvent, 2550.  
*Trihydroxybenzene* (3,1,5), see *Phloroglucinol*.  
*Trihydroxybenzoic acid*, see *Gallic acid*.  
*Trihydroxyglutaric acid*, 1605.  
*Triiodo-cream*, see *Losophan*.  
*Trimellitic acid*, 230.  
*Trimethylamine*, 1884.  
*m-Trimethylbenzene*, see *Mesitylene*.  
*sym-Trimethylbenzene*, see *Cumene*.  
*sym-Trimethylbenzene*, see *Cumene*, pseudo-.  
*Trimethylcarbinol*, see *Butyl alcohol (tert.)*.  
*Trimethylethylene*, see *Amylene*.

- Trimethylethylene*, see *Pekhal*.  
*Trimethylglucose*, 16, 24.  
*Trimethyl glycolol*, see *Betaine*.  
*Trimethyl methane*, see *Isobutane*.  
*Trimethylnaphthalene*, cellulose ester solvent, 2539.  
*2,4,6-Trimethyl pyridine*, see *Collidine*.  
*Trimethylxanthine*, see *Caffeine*.  
*Trimyristine*, see *Myristine*.  
*Trinaphthalene*, 855.  
*Trinaphthyl phosphate*, cellulose acetate solvent, 3032.  
*Trinitroaminoanisol*, 2933, 2964.  
*Trinitraniline*, see *Picramide*.  
*Trinitroanisol*, 2393, 2963.  
*Trinitroanisol*, cellulose ester solvent, 2544.  
*Trinitrobenzene*, 1825, 1867, 1870, 2962, 2963, 2970.  
 —, cellulose nitrate solvent, 2384.  
*Trinitrobenzene*, see also *Nitrobenzene*, *tri*.  
*Trinitrobutyltolhene*, see *Musk*, *artificial*.  
*Trinitrocellulose*, 1641, 1644.  
*Trinitrocresol*, 2967.  
*Trinitrocresol*, analysis, nitron for, 2316.  
*Trinitro-methane*, see *Nitroform*.  
*Trinitromesitylene*, 2967.  
*Trinitrophenetol*, 2393.  
 —, cellulose ester solvent, 2544.  
*Trinitrophenol*, see *Picric acid*.  
*Trinitropseudocumene*, 2967.  
*Trinitrotoluene*, 1825, 1868, 2965, 2970, 2974, 2976.  
 —, cellulose nitrate solvent, 2334.  
 —, explosive of nitrostarch and, 1830.  
 —, liquid, 2966.  
 —, stability, 1701.  
 —, transporting, 1929.  
*Trinitroxylene*, 2975.  
 —, reducing inflammability, cellulose nitrate by, 1785.  
*Trklein*, see *Olein*.  
*Trional*, cellulose ester solvent, 2545.  
*Triose*, 6.  
*Trioxanthraquinone*, see *Purpurine* (1,2,4).  
*Trioxbenzophenone*, see *Salicylresorcin*.  
*Trioxydiphenylcarbiganhydride*, *Rosolic acid*.  
*Trioxylglutaric acid*, see *Adonit*.  
*Trioxymethylene*, 235.  
*Trioxymethylene*, acetating cellulose in presence of, 3012.  
*Trioxymethylene*, formation of, 235.  
*Tripalmitin*, see *Palmitin*.  
*Triphenyl borate*, cellulose acetate solvent, 3032.  
*Triphenyl borate*, uninflamable celluloid by, 3043.  
*Triphenyl phosphate*, cellulose acetate solvent, 3032, 3039.  
 —, cellulose ester solvent, 2540.  
 —, reducing inflammability cellulose nitrate by, 1790.  
 —, urea with, 1793.  
*Triplex*, celluloid for, 2684.  
*Triplex glass*, 2684.  
*Tripoli esparto*, 327.  
*Trisaccharide*, 7.  
*Tristearine*, see also *Slearine*.  
*Triumfetta cordifolia*, 246.  
*Triumfetta rhomboidea*, 246.  
*Trivoline*, 2544.  
*Troisdorf powder*, 2930, 2975.  
*Trojan explosives*, composition of, 1841.  
*Trojan powder*, 1930.  
*Trojan trench mortar explosive*, 1837.  
*Trusses*, celluloid, 2741, 2743.  
*Trypsin*, activity of, in presence of cellulose nitrate, 1770.  
*Tsuga canadensis*, composition of, 261.  
*Tsuga heterophylla*, composition of, 261.  
*Tubeite*, 2975.  
*Tuberculin*, filtration, collodion tubes for, 1773.  
*Tubes*, celluloid for, 2688.  
 —, collapsible, cellulose nitrate, 1773.  
 —, —, collodion for, 1773.  
 —, phenestrated, 748.  
*Tubes*, *sounding*, see *Sounding tubes*.  
*Tubular powder*, 2934.  
*Tulle*, artificial, cellulose nitrate for, 2642.  
*Tung oil*, 2963.  
*Tungsten*, catalyst, 917.  
 —, niter cake for treating ores of, 202.  
 —, nitrogen compounds of, 920.  
 —, oxides, catalyst, 1296.  
 —, oxidizing ammonia by, 905.  
*Tungsten chloride*, catalytic action of, 1151.  
*Tungsten resinate*, reducing inflammability of celluloid by, 2752.  
*Tungsten salts*, reducing inflammability of cellulose nitrate by, 1789.  
*Tungstic acid*, absorption of, by cellulose, 63.

- Tungstic acid, catalytic action of, 1158.  
 Tunicin, 325.  
 —, dextrose in, 326.  
 Tuna, 2098.  
 Turkey red, 164.  
 Turkey red oil, 430.  
 Turkey red oil, see also Sodium sulfonate.  
 Turmeric, nitrated, 1874.  
 —, nitration of, 1837.  
 Turpentine, acetic acid solvent power, determining, 2571.  
 —, alcohol in, determination, 2571.  
 —, bromine absorption, determining, 2571.  
 —, cellulose nitrate with, 2574.  
 —, cellulose nitrate lacquer containing, 2593.  
 —, dissolving sulfur by, 1037.  
 —, miscibility curves, determining, 2571.  
 —, miscibility with aniline, 2571.  
 —, nitrated, 1869, 2248.  
 —, overcoming contractility of cellulose nitrate by, 2790.  
 —, reducing inflammability of celluloid by, 2752.  
 —, refractive index, determining, 2371.  
 —, removing resins in wood by, 321.  
 —, rotatory power, determining, 2571.  
 —, rosin in, determining, 2571.  
 —, solvent naphtha, determining, 2571.  
 —, spirits of, cellulose nitrate solvent, 2383.  
 —, substitutes for, analysis, 2570.  
 —, —, benzenes, heavy as, 2569.  
 —, substitute for, copal as, 2569.  
 —, —, decahydronaphthalene, 2569.  
 —, —, dekaline as, 2569.  
 —, substitutes for, deodorizing, 2570.  
 —, substitutes, detection, 2570.  
 —, substitutes for, determination, 2570.  
 —, —, hydrocarbons, cyclic as, 2569.  
 —, —, petroleum distillate as, 2569.  
 —, —, pine oil as, 2569.  
 —, —, rosin spirit as, 2569.  
 —, —, tetrahydronaphthalene as, 2569.  
 —, —, tetralin as, 2569.  
 —, —, texene as, 2569.  
 Turpentine, Venice, see Venice turpentine.  
 Turpentine chloride, 2520.  
 Turpentine oil, see Oil of turpentine.  
 Turpentine substitutes, 2568.  
 Twine, nitrating, 1582.  
 Type writer ribbons, celluloid coated, 2710.  
 Typhoxylon, 1646, 1716.  
 Typhoxylon, see also Cellulose nitrate.  
 Ulex Europens, cellulose from, 328.  
 Ulex Europens, nitration of, 328, 1878.  
 Umic bodies, influence of, on stability cellulose nitrate, 1711.  
 Umic acid, see Umic acid.  
 Ultra-filtration, colloidion for, 1773.  
 Ultramarine, 1622.  
 Ultramicroscope, cellulose and, 51.  
 —, cotton under, 61.  
 Ultraviolet light, catalyst of, 1111, 1296.  
 —, ultra-violet, stability of, cellulose nitrate towards, 1714, 2368, 2369.  
 —, testing explosives by, 2369.  
 Ultra-violet rays, action of, on starch, 435.  
 —, decomposition of cellulose nitrate by, 1763.  
 Ultra-violet, drying starch by, 154.  
 —, filters for, 2875.  
 Ultraviolet light, ionizing gases by, 1392.  
 Umbrella tips, celluloid, 2712.  
 Unona seldanica, 1783, 2753.  
 Uplands cotton, constants of, 505.  
 Ural, see Chloralurethane.  
 Uraline, see Chloralurethane.  
 Uralium, see Chloralurethane.  
 Uranium, catalyst, 918.  
 —, catalyst of oxides of, 702.  
 —, oxidizing ammonia by, 897, 903.  
 Uranine A, 2871.  
 Uranium ammonium nitrate, 2851.  
 Uranium carbide, oxidizing ammonia by, 903, 904, 908.  
 Uranium chloride, dissolving cellulose by, 109.  
 Uranium ferrocyanide, intensifying by, 2824.  
 Uranium nitrate, colloidion emulsion containing, 2825.  
 —, iodizer addition to, 2812.  
 —, increasing colloidion image density by, 2816.  
 Uranium oxide, 903.  
 —, catalyst of, 1111, 1158.  
 Uranium printing, 2851.  
 Uranium salts, absorption cellulose

- Uranium salts, iodizer addition to, 2813.  
 Urankum sulfate, photo developing by, 2819.  
*Uranyl*, see *Uranium*.  
 Urea, 251, 680, 1433, 2402, 2754, 3074.  
 —, acetation of, 3037.  
 —, cellulose acetate solvent, 3032, 3036.  
 —, cellulose ester solvent, 2551.  
 —, decomposing nitrites by, 904.  
 —, iodizer addition to, 2812.  
 —, influence of, in cellulose nitrate viscosity, 1735.  
 —, —, on stability tests for cellulose nitrate, 2355.  
 —, manufacture of, 2904.  
 —, preserving collodion emulsions by, 2846.  
 —, preparing nitrogen from, 691.  
 —, reducing inflammability of cellulose nitrate by, 1700.  
 —, stabilizer of, 2942.  
 —, triphenyl phosphate with, 1793.  
 Ureas, 2382.  
 Urea acetate, 3037.  
 —, cellulose ester solvent, 2551.  
 Urea benzoate, cellulose ester solvent, 2551.  
 Urea butyrate, cellulose ester solvent, 2551.  
 Urea formate, cellulose ester solvent, 2551.  
 Urea nitrate, 2964.  
 —, cellulose ester solvent, 2551, 2552.  
 —, manufacture, 933.  
 Urea naphthoate, cellulose ester solvent, 2551.  
 Urea oxalate, 2984.  
 —, cellulose ester solvent, 2552.  
 —, reducing inflammability of cellulose nitrate by, 1789.  
 Urea propionate, cellulose ester solvent, 2551.  
 Urea salicylate, cellulose ester solvent, 2551.  
 Urea sulfate, cellulose ester solvent, 2551.  
 Urea valerate, cellulose ester solvent, 2551.  
*Urena lobata*, 246.  
*Urena sinuata*, 246.  
*Ureous acid*, see *Xanthine*.  
 Urethane, treating viscose with, 3074.  
 Urethanes, cellulose ester solvent, 2540, 2552.  
 Urethanes, substituted, cellulose ester solvent, 2544.  
 Uric acid, iodized, cellulose nitrate with, 2794.  
*Uric oxide*, see *Uric acid*.  
*Urotropine*, see *Hexamethylenetetramine*.  
*Uvic acid*, see *Racemic acid*.  
 Vaccine shields, celluloid, 2741.  
 Vacuum pump, Nash, 529.  
 —, packing pistons of, 825.  
 Valeraldehyde, 2385.  
*Valamin*, see *Isoamylisonalate*.  
*Valerianic acid*, see *Valeric acid*.  
 Valeric acid, 206, 347.  
*n*-Valeric acid, ethyl methyl ketone from, 2397.  
*iso*-Valeric acid, see also *iso*-Propylacetic acid.  
*Valerianic ether*, see *Ethyl valerianate*.  
*iso*-Valeric aldehyde, 2384.  
 Valerolactone, 44, 58.  
 Valerone, 2387, 2401.  
*Valerone*, see also *Di-isobutyl ketone*.  
*Valeronitrile*, see *Butyl cyanide*.  
*Valerylene hydroiodide*, see *Iodoamylene*.  
*iso*Valeryl glucose, 187.  
*Valerylhydrocellulose*, see *Hydrocellulose valerianate*.  
 Valve, acid, 1468.  
 —, acid-proof, 959.  
 —, Everlasting, 1468.  
 Vanadic acid, catalytic action of, 1158, 2530.  
 Vanadic anhydride, 789.  
 Vanadium, compounds, catalyst, 1120.  
 —, determination, oxycellulose for, 167.  
 —, niter cake for treatment of ores of, 789.  
 —, oxidizing ammonia by, 905.  
 Vanadium chloride, 167.  
 Vanadium oxide, catalyst of, 1111.  
 Vanadium pentoxide, catalytic action of, 1103, 1120, 1150.  
 —, preparation of, 1150.  
 Vandura milk, 2846.  
 Vanilla, dry plate preservative, 2830.  
*Vanillic aldehyde*, see *Vanillin*.  
 Vanillin, 265, 2617.  
*Vanillic acid*, see *Anillic acid*.  
 Vapor, aqueous, density of, 1237.  
 Varnish, camphene in, 2555.  
 —, cellulose acetate, 3053.  
 —, cellulose nitrate, 2572.  
 —, cellulose-phenol condensing products for, 237.

- Varnish, collodion for, 1590.
- , nitropaper, 2580.
- , removers for, 2382, 2562.
- , soya bean for, 2551.
- Varnish, see also Lacquer, Paint.
- Veratrol, see Catechol dimethyl ether.
- Vasculose, 8.
- Vaseline, 2928, 2943, 2970, 2974.
- , alcohol recovery by, 2558.
- , ether recovery by, 2558.
- , paint remover containing, 2565.
- , reducing inflammability of cellulose nitrate by, 1785.
- Vaseline, see also Paraffin, Mineral jelly.
- "Vat dyestuffs," 142.
- Vats, boiling, lining, 2081.
- Vegetable amyloid, see Amyloid.
- Vegetable down, 496.
- Vegetable edredon, 496.
- Vegetable gelatin, 2928.
- Vegetable ivory, mannose from, 1802.
- , nitrating, 1875, 1876.
- Vegetable parchment, 143.
- Vegetable pith, nitration of, 320.
- Vegetable wax, reducing inflammability of cellulose nitrate by, 1785.
- Vegetalin, 2669.
- Vehicle manufacture, celluloid in, 2698.
- Velodite, 2975.
- Velvets, brocading, cellulose nitrate for, 2616.
- , brushing of, cellulose nitrate for, 2616.
- Velvrl, 2606.
- Vender denitration system, 1469.
- Venetian red, 812.
- Venice turpentine, 8304.
- , brush lacquers of cellulose nitrate and, 2592.
- , celluloid lacquer containing, 2578.
- , paint remover containing, 2565.
- Veratrine, cellulose nitrate with, 2794.
- Veratrol, 2392.
- , cellulose ester solvent, 2543.
- Veronal, cellulose acetate solvent, 3037.
- , manufacture, 933.
- , solubility of, 3037.
- Vessels, acid-containing, coating, 954.
- Vessel, discharge collecting, celluloid, 2741.
- Vessels, storage, coating, 968.
- , submerged, blasting, cellulose nitrate for, 2164.
- Vetillar test, 529.
- , acetate, 2393, 2537.
- Vieille test, 2345, 2347.
- Vignettink, celluloid in, 2917.
- Vigorite, 1624, 1804, 1810, 1855, 2973, 2975.
- Vinegar, naphtha, see Ethyl acetate.
- Vinous alcohol, see Ethyl alcohol.
- Vinyl acetate, celluloid lacquer containing, 2578.
- , cellulose ester solvent, 2549.
- Vinyl chloracetate, celluloid lacquer containing, 2578.
- Vinyl esters, amyl acetate substitute, 2582.
- Violet rays, filters for, 2875.
- Violin mutes, celluloid, 2730.
- Violin tailpieces, celluloid, 2730.
- Visca, 3076.
- Viscelline yarn, 3082.
- Viscoid, 3068.
- , hygroscopicity of, 541.
- , masses of, 3076.
- Viscoloid, 3094, 2967.
- Viscometer, see Viscosimeter.
- Viscose, 22, 2281, 3062.
- , action nitrous acid on, 1906.
- , action ozone on, 153.
- , action alkali on, 221.
- , adhesive of, 3078.
- , albuminoids and, 3082.
- , applications of, 3072.
- , artificial cotton from, 566.
- , artificial feathers of, 3079.
- , artificial horse hair of, 3082.
- , artificial leather of, 3079.
- , artificial straw of, 3082.
- , artificial wood from, 3077.
- , bleaching, 3071.
- , bottle caps of, 3082.
- , calendaring rolls of, 3080.
- , carbon filaments of, 2594.
- , casein and, 3082.
- , cellulose for, 560.
- , coating thread with, 3082.
- , contractility of, 3076.
- , cork containing, 3079.
- , dentifrice of, 3080.
- , dry, manufacture of, 3074.
- , drying, 3072.
- , dyeing, 3071.
- , ebonite containing, 3080.
- , electric filaments of, 3076.
- , felt-like substance of, 3079.
- , fibrin and, 3082.
- , films of, 3074.
- , fixing of textiles, 3081.
- , formation of, 22, 3074.
- , gas bags of, 3080.
- , glue and, 3082.

- Viscose, glycerol and, 3081.  
 —, grinding wheels of, 3079.  
 —, hemp substitute of, 3078.  
 —, historical, 3062.  
 —, hydrolysis of, 3071.  
 —, insulating with, 3080.  
 —, leather substitute of, 3079.  
 —, linseed oil and, 3081.  
 —, lustering, 3071.  
 —, manufacture of, 3064.  
 —, —, dry, 3074.  
 —, membranes of, 1885.  
 —, mercerizing finish of, 232.  
 —, moisture in, 512.  
 —, mordant of, 3078.  
 —, paint remover of, 3077.  
 —, paint material of, 3082.  
 —, phonograph plates of, 3079.  
 —, plastics, 3079.  
 —, plastics of cellulose and, 335.  
 —, polishing wheels of, 3079.  
 —, precipitating, 3068.  
 —, —, niter cake for, 895.  
 —, preserving hollow posts with, 3079.  
 —, printing paper of, 3060.  
 —, printing reserve colors with, 3078.  
 —, proteins and, 3081, 3082.  
 —, ripening, 22, 3067.  
 —, —, determining degree of, 3067.  
 —, rolls of, 3080.  
 —, rubber and, 3081.  
 —, sausage casing of, 3082.  
 —, sizing paper by, 3078, 3082.  
 —, softening, 3071.  
 —, sodium bisulfate as precipitant of, 3080.  
 —, spectrum of, 52.  
 —, sponge of, 3079.  
 —, stabilizing, 3071.  
 —, sthenosaged, 3071.  
 —, tension equilization, 3073.  
 —, toughening, 3071.  
 —, transfer process with, 3080.  
 —, twisting, 3073.  
 —, viscosity of, 385.  
 —, waterproofing, 3071.  
*Viscose, see also Cellulose xanthate.*  
 Viscose-rubber, 3081.  
 Viscosimeter, Cothran, 2276.  
 —, comparison of, 1741.  
 —, MacMichael, 2282.  
 —, Os, 2289.  
 —, Ostwald, 1749.  
 —, Ostwald-Poiseuille, 1736, 2278.  
 —, Redwood, 2275.  
 —, Sayboldt, 2275.  
 —, Speedy, 2279.  
 —, steel ball, 1741.  
 Viscometer, Stormer, 1741, 2281.  
 —, Wolf, 2280.  
 Viscosimeter tubes, standardizing, 550.  
 Viscosity, absolute, 2284.  
 —, Arrhenius' formula, 1746.  
 —, ball fall method, 1744, 2280, 2285.  
 —, cellulose, determining, 385.  
 —, cellulose solutions, 46.  
 —, coefficient of, 2284.  
 —, cotton, determining, 548.  
 —, —, ball fall method, 2285.  
 —, —, falling sphere method, 549.  
 —, determining in cellulose nitrate in, 2275.  
 —, modifying, 1729.  
 —, effect nitrogen content on, 1746.  
 —, quantitative theory, 1749.  
 Vitreosil, 1278, 1362, 1363, 1371.  
 Vitriol chambers, air supply to, 1237.  
 —, nitrous, denitration, 1284.  
*Vitriol, oil of, fuming, see Oleum.*  
 Vitroloid, 2669.  
 Vitrose, 1693.  
 Volemit nitrate, 1848.  
 Volenite, 2670.  
 Volkmann's wood powder, 2973.  
 Volvic lava, lining towers with, 1277.  
 Vernalithe, 2753.  
 Vocabeston, 2778.  
 Vulcanite, 105.  
 Vulcanized fiber, 104.  
 —, cellulose nitrate in, 2655.  
 —, cuprammonia cellulose for, 104.  
 —, manufacture of, 104.  
 —, nitration of, 104, 338.  
 —, plastic, 106.  
 —, softening, 104, 105.  
 Wall paper, cellulose nitrate applied to, 2381.  
 Waist fastener, celluloid, 2711.  
 Walsrode powder, 2975.  
 —, analysis of, 1795.  
 —, combustion of, 1794.  
 Warnerke film, 2889.  
 Warren powder, 2975.  
 Waste acid, composition of, 1437, 1441.  
 —, denitration, Chardonnet method, 1441.  
 —, —, Evers process, 1447.  
 —, recovery from picric acid manufacture, 1426.  
*Waste acid, see also Spent acid.*  
 Waste, celluloid, utilization, 2755.  
*Waste film, see Film, waste.*  
 Watel, absorptive power of, for cotton, 518.

# INDEX OF SUBJECTS

- Water, action of, on cellulose, 144.
- , action of, on mixed acid, 1406.
- , cooling mixed acid by, 1481.
- , density (table), 1521, 1522.
- , deterring decomposition of cellulose nitrate by, 1600.
- , filtering, cellulose nitrate for, 1892.
- , hot, action on cellulose, 519.
- , impure, effect on stability of cellulose nitrate, 1711.
- , influence of, in cellulose nitration, 1885.
- , specific gravity (table), 1521, 1522.
- , superheated, stabilizing of cellulose nitrate by, 2093.
- , volume of (table), 1522.
- Water glass, 2022.
- , niter cake in manufacturing, 792.
- , reducing inflammability cellulose nitrate by, 1787.
- , stabilizing cellulose nitrate by, 1594.
- Water glass, *see also* Sodium silicate.
- Waterhouse film, 2888.
- Waterproofing, cellulose nitrate for, 2574.
- Waterproofing compositions, cellulose nitrate, 2610.
- Watch crystal, celluloid, 2712.
- Wax, cotton, 534.
- , iodizer addition to, 2813.
- , paint remover containing, 2566.
- , solidifying alcohol by, 2598.
- Wax and acetone, celluloid lacquer containing, 2578.
- Waxed cloth, *see* Cloth, *waxed*.
- Wearing apparel, reinforcing, celluloid for, 2710.
- Weaving mill waste, 580.
- Weber explosion stability test, 2365.
- Wellorich powder, 2975.
- Welsbach mantles, *see* Mantles, incandescent.
- West African jute, 246.
- West Indian cotton, diameter of fibers, 508.
- West Madras cotton, diameter of fibers, 508.
- Western cotton, constants of, 506.
- Western hemlock, composition of, 261.
- Western larch, composition of, 261.
- Wet Thion process, 1032.
- Wetterer powder, 2930, 2975.
- Whalebone, artificial celluloid for, 2710.
- Wheat, ash in, 247.
- , cellulose in, 244.
- , constants of, 244.
- , lignin in, 244.
- , moisture in, 244.
- , pectic matter in, 244.
- , protein in, 244.
- , starch in, 446.
- Wheels, buffing, cellulith for, 338.
- , grinding, viscose for, 3079.
- , polishing, cellulith for, 338.
- , —, viscose for, 3079.
- White birch, *see* Birch.
- White cotton, constants of, 505.
- White dextrin, *see* Dextrin, white.
- White fir, composition of, 261.
- White gunpowder, 1592, 1818.
- White mineral jelly, 2952.
- White mineral jelly, *see also* Vaseline.
- White pine, composition of, 261.
- White powder, 1818.
- White spruce, composition of, 261.
- White soap, preserving collodion emulsions by, 2847.
- Wigs, celluloid, 2702.
- Wieman stability test, 2367.
- Willesden goods, 77.
- Willowing, 627.
- Will test, 1704, 2347, 2350.
- , Bashieri modification, 2354.
- , Robertson's modification, 2351.
- Window, applying designs to, celluloid lacquers, 2579.
- Window transparencies, 2865.
- Wine, filtering cellulose nitrate for, 1892.
- Wine of wood, 2409.
- Wines, clarification of, cellulose for, 334.
- Winegreen oil, *see also* Methyl salicylate.
- Wire, coating with cellulose nitrate, 2573.
- , insulating, cellulose acetate for, 3058.
- , parkesine lacquer for, 2577.
- Witham screen plate, 2114.
- Wolff viscosimeter, 2280.
- Wood, 241.
- , acetic group in, 354.
- , alder, nitrated, 1811.
- , alcohol from, 664.
- , analysis of, 352.
- , —, Schorger method, 368.
- , artificial, viscose for, 3077.
- , ash in, 244.
- , baobab, nitrated, 1812.
- , bleaching, 619.
- , cellulose in, 244.



- Wood, coating, cellulose nitrate for, 2574.  
 —, coloring, nitrogen tetroxide for, 721.  
 —, composition of, 254, 258.  
 —, constants of, 244.  
 —, deal, nitrated, 1812.  
 —, dehydration by steam, 35.  
 —, digesting of, 270, 278.  
 —, dissolving, hydrochloric acid for, 94.  
 —, distillation of, 258, 261.  
 —, —, dry, 664.  
 —, —, with NaOH, 58.  
 —, drying, 56, 666.  
 —, estimation lignin in, 363.  
 —, extracting resin from, 289.  
 —, fulminating, 1811.  
 —, hydrolysis of, 125, 212.  
 —, lignin in, 244, 258, 259.  
 —, moisture in, 244.  
 —, nitrated, explosive of nitroglycerol, sulfur and, 1632.  
 —, nitration of, 1808, 1812.  
 Wood, nitration of, see also Nitrolignin.  
 —, oxidation of, by ozone, 152.  
 —, pectic matter in, 244.  
 —, pentosans in, 316.  
 —, photographing on, 2915.  
 —, protein in, 244.  
 —, rotting of, 345.  
 —, seasoning, acetone for, 2400.  
 —, spruce, composition of, 345.  
 —, stains for, cellulose nitrate for, 2595.  
 —, waterproofing, cuprammonium cellulose for, 78.  
 Wood, see also Cellulose, Cotton, Paper, Lignin.  
 Wood, see also Wood Pulp.  
 Wood alcohol, see Methyl alcohol.  
 Woodbury-type, 2911.  
 Wood cellulose, density, 1755.  
 —, dialysis, 1760.  
 —, hydrocellulose from, 600.  
 —, nitrated, density, 1755.  
 —, nitrating, 1878, 1873.  
 —, optical activity, 1760.  
 —, oxycellulose from, 600.  
 —, refraction, 1760.  
 Wood cellulose, see also Cellulose, Lignin, Lignocellulose; Wood, P.  
 Wood chips, cellulose from, 27.  
 Wood engraving, collodion, 2915.  
 Wood fiber, see Lignin.  
 Wood gums, 352, 536.  
 —, determining, 552.  
 —, nitro-derivative, 1848, 1849.  
 —, tetranitrate of, 1845.  
 Wood liquor, 207.  
 Wood naphtha, 2400.  
 Wood naphtha, see also Methyl alcohol.  
 Woodnite, 1810.  
 Wood oil, storage acid in vessels coated with, 959.  
 Wood oil, see also Tung oil.  
 Wood powder, Schultze's granulation, 1620.  
 Wood preservative, acetone oil for, 2401.  
 Wood pulp, 266.  
 —, absorbing nitroglycerol by, 289.  
 —, action of alkali on, 221.  
 —, alcohol from, 197.  
 —, cellulose in, 290.  
 —, comminuting, 288.  
 —, composition of, 284, 285.  
 —, copper value of, 547.  
 —, digestion of, 270.  
 —, dissolving, 288.  
 —, esterification of, 293.  
 —, fleece from, 566.  
 —, fodder from, 280.  
 —, food value of, 280.  
 —, hydrogen peroxide, treatment of, 271.  
 —, Kellner process, 274.  
 —, Kraft process, 269.  
 —, lignin in, 290.  
 —, lye from, utilization of, 280.  
 —, manufacture of, 266.  
 —, manufacture, Hasenbaurer process, 279.  
 —, Mitscherlich, 313.  
 —, Mitscherlich process, 287.  
 —, nitrated, 1624.  
 —, nitrating, 285, 288, 293, 316.  
 —, —, purification of, 289.  
 —, nitric acid, treatment of, 271.  
 —, nitrogen oxide, treatment of, 271.  
 —, nitrous acid, treatment of, 271.  
 —, plastic from, 269.  
 —, —, Porter's method, 269.  
 —, purification of, 275, 286, 303.  
 —, —, Girard, 288.  
 —, purification, Zellstoffabrik Waldhof, 286.  
 —, "Redwood" tree, 278.  
 —, refining, Dreyesen method, 289.  
 —, resins in, 288.  
 —, Ritter-Kellner, 313.  
 —, Ritter-Kellner process, 273.  
 —, soda, manufacture of, 316.  
 —, soda process, 269.  
 —, sodium peroxide, treatment of, 271.  
 —, specifications for, 284.

- Wood pulp, "sulfate process," 276.  
 —, sulfite, copper value of, 647.  
 —, "sulfite process," 276.  
*Wood pulp, see Cellulose wood; Wood.*  
 Wood pulp liquor, binder composed of, 275.  
 —, briquettes of, 275.  
 —, filler of, 275.  
 —, impaled articles from, 275.  
 Wood milk, 3072.  
 Wood spirit, 2409.  
*Wood spirit, see also Methyl alcohol.*  
 Wood waste, alcohol from, 287.  
 Wool, absorption of acids by, 118.  
 —, action aluminum chloride on, 114.  
 —, action hydrochloric acid on, 114.  
 —, action of sulfuric acid on, 118.  
 —, artificial, 336, 1931.  
 —, grease in, extracting, 791.  
 —, imitation, 1931.  
 —, internal stresses in, 49.  
 —, mordanting, lignorodin for, 282.  
 —, sulfite liquor for, 282.  
 —, nitrating, 1877.  
 —, refraction of, 48.  
 —, specific heat of, 39.  
 —, tensile strength of, 527.  
 Wool washings, acetone oil from, 2460.  
 Wothlytype, 2850.  
 Woulff's bottle, 758.  
 —, lead chamber substitute, 1222.  
 Wounds, shields for, celluloid, 2741.  
 Wristlet, celluloid, 2712.  
 Wrist watch protector, celluloid, 2712.  
 Writing paper, starch for, 466.  
*Wrought iron, see Iron, wrought.*  
 Wyoming alcohol, 2412.  
 Xanthates, carbohydrate, 3083.  
 —, starch, 3083.  
 Xanthating, superficially, 3072.  
 Xanthoproteic acid, 1881.  
*Xenylamine, see Amino-diphenyl (p).*  
 X-rays, ionizing gases by, 1392.  
 X-ray screens, cellulose nitrate, 2912.  
 X-ray tubes, celluloid as shields for, 2908.  
 —, cellulose acetate as shields for, 2908.  
 —, action of on starch, 435.  
*Xylan, see 329, 352, 536.*  
 Xylan acetate, 185.  
 Xylamide, 2669.  
 —, cellulose ester solvent, 2548.  
*Xylene, 1860, 2252.*  
 —, amylacetate substitute, 2532.  
 Xylene cellulose nitrate gelatinizer, 1885.  
 —, extracting impurities in cellulose nitrate by, 2081.  
 —, treatment of cellulose by, 236.  
 Xylene benzenitrochloride, cellulose ester solvent, 2540.  
 Xylene bromide, cellulose ester solvent, 2540.  
 Xylene chloride, cellulose ester solvent, 2540.  
 Xylenemonoethylsulfonamide, cellulose acetate solvent, 3039.  
 Xylenemonoethylsulfonamide, cellulose acetate solvent, 3039.  
 Xylene nitrate, 2967.  
 Xylene nitrobenzide, cellulose ester solvent, 2540.  
 Xylene nitrochloride, cellulose ester solvent, 2540.  
*Xylic acid, see Dimethyl benzoic acid.*  
 Xylidene, dissolving cellulose acetate by, 3007.  
 —, reaction with lignocellulose, 262.  
 Xylidine ponceau, 126.  
 Xylina, 485.  
 Xylinite, 2666.  
 Xylite pentacetate, 185.  
 Xylobrome, 1810.  
 Xyloglodine, 1868, 2975.  
 Xyloidine, 1567, 1568, 1569, 1570, 1666, 1668, 1816, 1903, 2662, 2670.  
 —, feeding animals with, 1570.  
 —, fuse of, 1624.  
 —, Gladstone's, 1642.  
 Xyloidins, saponification of, 1668, 1903.  
 Xyloisate, 2662.  
 Xylolene, 2642.  
 Xylolith, 338, 2662.  
*Xylol, see Xylene.*  
 Xylon, 281, 485.  
 Xylonite, 1694, 2381.  
 —, manufacture of, Edson process, 1633.  
*Xylonite, see also Celluloid.*  
 Xylonith, 2662, 2670.  
 Xylopaper, 2602.  
 Xylose, 7, 45, 166, 205, 260, 330, 337, 636, 1644.  
 —, preparation of from corn cobs, 266.  
 —, rotatory power of, 51.  
 —, anhydride dinitrate, 1846.  
 —, benzoate, 330.  
 Xylose dinitrate, 1844.  
 Xylose osazone, 630.  
 Xylose tetracetate, 183.  
 L-xylose tetranitrate, 184.

- Xylol compounds, cellulose ester solvent, 2547.  
 Xylol-desoxy, 236.  
 Yarn, coating, cellulose acetate for, 3053.  
 —, metallization, cellulose nitrate for, 3045.  
 —, waterproofing, cuprammonium for, 88.  
 Yellow pine, C. position of, 258, 261.  
 Yellow powder, 1811.  
 Yttrium oxides, catalyst, 1122.  
 Zafons, 1693.  
 Zein, cellulose ester solvent, 2550.  
 —, starch from, 2550.  
 Zeolites, 1056, 1151.  
 Zinc, action sulfuric acid on, 1319.  
 —, analysis, in pyrites, 1055.  
 —, catalyst inhibitor, 905.  
 —, extraction, niter cake for, 792.  
 —, ores, niter cake for treating, 803.  
 —, recovery in sulfuric acid manufacture, 1310.  
 —, recovery, niter cake for, 802.  
 —, salts, dissolving cellulose by, 67.  
 —, separation manganese from by niter cake, 803.  
 —, niter cake for dissolving, 907.  
 Zinc acetate, coloring celluloid by, 1896.  
 —, reducing inflammability cellulose nitrate by, 1785.  
 Zinc-ammonium hydr. xide, preparing, 71.  
 Zinc blende, composition of, 1077.  
 —, casting, Hasenclever furnace, 1077.  
 —, —, sulfur dioxide in, 1076.  
 —, —, sulfur in, determining, 1056.  
 —, sulfur dioxide from, 1058, 1076.  
 Zinc blende, *see also* Zinc sulfide.  
 Zinc bromide, 2811.  
 —, dissolving cellulose by, 67, 101, 109.  
 —, emulsion of, 2871.  
 —, reducing inflammability, cellulose nitrate by, 1779.  
 Zinc caseinate, reducing inflammability of celluloid by, 2754.  
 Zinc chlorate, dissolving celluloid by, 67, 105.  
 Zinc chloride, action of, on celluloid, 120, 214.  
 Zinc chloride, coagulating cellulose nitrate by, 2252.  
 —, dissolving cellulose by, 67, 101, 2988.  
 Zinc chloride, dissolving hydrocellulose by, 102.  
 —, dissolving silk in, 102.  
 —, dissolving wood pulp by, 288.  
 —, distillation of wood with, 59.  
 —, formylating cellulose in presence of, 3015.  
 —, hydrocellulose, and, 104.  
 —, mercerizing by, 229.  
 —, plastic of cellulose and, 335.  
 —, reducing inflammability of cellulose nitrate by, 1788, 1789.  
 —, removal of, from cellulose, 28.  
 —, stabilizing cellulose nitrate by, 1703, 2094.  
 Zinc chloride-iodide, 137.  
 Zinc citrate, cellulose nitrate solvent of alcohol and, 2388.  
 Zinc iodide, 2811.  
 —, dissolving cellulose by, 67, 101, 105.  
 —, dissolving cellulose by formic acid and, 110.  
 —, reducing inflammability, cellulose nitrate by, 1779.  
 Zinc iodide-starch paper, 2334.  
 Zinc lactate, cellulose nitrate solvent of alcohol and, 2388.  
 Zinc levulinate, cellulose nitrate solvent of alcohol and, 2388.  
 Zinc methide, *see* Zinc methyl.  
 Zinc nitrate, 2817.  
 —, concentrating nitric acid with, 1002.  
 —, dissolving cellulose by, 105.  
 Zinc oleate, 3057.  
 Zinc oxalate, cellulose nitrate solvent of alcohol and, 2388.  
 Zinc oxide, absorbing nitrous gases by, 893.  
 —, nitric acid manufactured with, 811.  
 —, reducing inflammability of cellulose nitrate by, 1779.  
 Zinc oxychloride, reducing inflammability of cellulose nitrate by, 1788.  
 Zinc palmitate, 3057.  
 Zinc plumbite, oxidizing ammonia by, 897.  
 Zinc resinate, reducing inflammability celluloid by, 2752.  
 Zinc ricinoleate, reducing inflammability of cellulose nitrate by, 1786.  
 Zinc stearate, 3057.  
 Zinc sulfate, oleum from, 1131.  
 —, purifying cellulose by, 564.  
 Zinc sulfide, 1008.  
 —, coloring celluloid by, 1896.

- Zinc sulfite, purifying cellulose by, 564.
- Zinc sulforicinate, reducing in permeability of cellulose nitrate by, 1798.
- Zinc tartrate, cellulose nitrate solvent of alcohol and, 2388.
- Zircon, 949.
- ~~Zirconia~~ <sup>as</sup> Zirconium oxide.
- Zirconium, oxidizing ammonium, 95.
- Zirconium glass, 837.
- Zirconium oxide, catalyst of, 811.
- 1122, 1188.
- Zizaniaceae, starch in, 405.
- Ziziphus, 2980.
- Zostera marina, 338.
- Zuhlkowski's method, 1041.
- Zulbidine, 1572.
- Zylodine, 9578.
- Zylonite, 94 9609.













